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LECTURES
ON
COMPARATIVE ANATOMY
AND
ANIMAL PHYSIOLOGY,

DELIVERED BY

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LECTURE XXXIII.

ON THE MUSCULAR SYSTEM OF FISHES AND AMPHIBIA.

Fishes are to man what the worm is to the perfect insect. They are to the higher vertebrated classes of animals what the annelides are to the articulated animals with articulated members. They consist almost entirely of trunk, and upon its motion from side to side depends almost wholly their progression through the liquid element they inhabit. Their arms and legs are consequently but little employed either for support or locomotion, and the slender hands and feet alone project from the trunk, as in the human embryo, when they are beginning to bud from the sides. We have already seen how their compressed trunk is extended upwards and downwards by the lengthening and the lineal arrangement of the common elements of the vertebræ, and the broad surface which is thus afforded for the numerous strong muscles destined to move laterally the vertebral column. We see, upon examining the skeleton, that that vertebral column admits of free and extensive motion to the right and to the left; and we have seen how beautifully all parts of the skeleton (consisting almost of the vertebral column alone) are organized for this lateral motion, and how it is constructed in such a way as to allow of very limited motion upwards and downwards.

You might, therefore, from seeing the structure of the bones and their articulations, infer that the muscles which are destined for the progressive motion of fishes are disposed upon the two sides of the column in such a way, as to act most powerfully and most favourably in bending it in a horizontal plane to the right or to the left side. So that the waving serpentine motion of the trunk of fishes is like that of the armless trunks of worms through the same dense element.

The muscles thus disposed in fishes for the motions of the vertebræ, present us with the lowest condition of this system in the vertebrated classes, and you observe them disposed in transverse similar strata, like those of a worm or an insect for the motions of the several segments of their body. They are very little permeated by red blood, and have the softness and the colourless translucency, in the recent state, almost of the invertebrated classes. The fibres are less fibrinous, less irritable, less dense than in higher vertebrata, and by heat or coagulation they are rendered more firm and opaque, and more easily detached from each other, their cellular connecting soft tissue being thereby destroyed. The imperfect development and feeble contractility of the muscles of fishes correspond with the still soft and elastic condition of the bones into which they are to be inserted, and they correspond with the soft pulpy translucent and colourless condition of the muscular system in man and mammalia at an early period of their development. So that fishes only retain, as a permanent condition of their muscular apparatus, characters which are transient in the highest forms of vertebrata, and we have seen the same analogy preserved in the permanent soft condition of their bones.

There is less red blood circulated through the muscles and through the body of fishes, in comparison with their bulk, than there is in the higher vertebrated animals, and they possess but a languid irritability or

power of contraction compared with the more highly organized muscles of the warm-blooded classes. Their motions also through their dense element are so few and so little varied, that they require not that complex arrangement of pulleys directed to various minute and distant points of the body which we see where members for locomotion are more developed, and where those members, more subdivided, admit of extensive and powerful motions in all directions, to carry the trunk over the dry land, or through the thin air.

The muscles of fishes seldom unite into fasciculi, or converge to narrow tendons to be inserted into small points of their feeble skeleton. They are, as you observe on the trunk of the perch (*Fig.* 136), disposed in parallel strata, those strata separated from each other by tendinous thin aponeuroses, and consisting of fibres running parallel to each other, like those of the segments in articulated animals, from the one side of the stratum to the other. Those strata of longitudinal muscular fibres, occupying the sides of the trunk, are disposed in transverse bands running in four distinct series (*Fig.* 136, *a*, *b*, *c*, *d*), which are chiefly marked by

Fig. 136

a difference in their general directions. Those four external series of muscles on each side, notwithstanding the difference of their general directions, have their component fibres running with but slight deviations in the longitudinal direction. We observe that those numerous transverse parallel strata are connected together by very thin tendinous aponeuroses which are spread between them, and into which the extremities of all the parallel fibres are inserted. We observe that those aponeuroses, connecting the external transverse muscular strata, are connected within to the bodies, and the spinous processes of the vertebræ, for the most part. They extend directly outwards to the surface, and have a firm attachment to the skin, which produces that transverse grooved marking which we see on the sides of fishes, when their muscles are rigid, or in action.

The four regularly disposed external lateral series of muscles have their tendinous intersections so arranged, that in the upper or dorsal part they are directed downwards and backwards (*Fig.* 136, *a*). The second portion has the membranous separations continued downwards but directed forwards (*Fig.* 136, *b*). The next beneath (*Fig.* 136, *c*) has them directed downwards and backwards like the first, and the lowest or abdominal portion (*Fig.* 136, *d*) presents these intersections again turned downwards and forwards like the second. In all these strata the component parallel muscular fibres, lying in a longitudinal direction with regard to the body, pass in a very oblique manner from one membranous partition to the other. The upper series extending forwards to be attached to the occipital bone, occupy the deep cavity on each side of its projecting spine, and extend backwards to the longitudinal short muscles of the caudal fin. It is chiefly for the insertion of this extensive interrupted muscle on each side of the occipital bone, that the posterior region of the cranium requires to be so much enlarged in fishes beyond what is necessary to contain the cerebral mass. These muscles conceal those of the interspinous bones above and below, for the motion of the rays of the median fins. Thus the whole of these muscles occupying the sides of the body are disposed in this oblique direction, and in a zigzag manner, and the upper two strata correspond in their direction with the lower two. This oblique direction of all their fibres and layers gives considerable velocity to the motions of the parts upon which they act, as we see in the case of the intercostal muscles of quadrupeds. These lateral muscles correspond in their divisions to the vertebræ into which they are inserted, and when we trace them from their fixed attachments to the vertebral column outwards to their insertions into the scaly skin, you observe that all these strata extend obliquely outwards and backwards, so that their convexity is towards the head, and their concave surface towards the tail. They tend, therefore, by their contraction to draw the surface of the body in all parts forwards and inwards when the vertebræ are the fixed points.

From the disposition of these four series, which we find thus lateral in all the compressed forms of fishes, but placed superiorly and inferiorly in all the depressed or flat fishes, which have the trunk extended laterally, not upwards and downwards as in the cod before you, and in these figures of the *perch* (*Fig.* 136), it is clear that when one of the strata moves alone by volition of the fish, that the motion of the body will be in the direction in which that layer acts. Thus, as the muscles are disposed in the same manner

on the two sides of the body, if the upper layer acts alone on each side at the same time, it will bend the body slightly upwards and curve the tail upwards towards the head, a position which it cannot arrive at, on account of the magnitude of the dorsal developments of the vertebræ. If it act only on one side of this first stratum, it will bend, of course, the body slightly to one side, still inclining much upwards. If the two upper series of muscles act together on one side only, they will bend it with greater force to one side, but still upwards slightly. Combining the motion of all those strata of one side together, you perceive the force with which the posterior part of the whole column must strike to one side. If, however, those muscles are already stretched out, by the coccygeal part of the vertebral column being drawn to the opposite side, and the whole muscles of one side act with one instantaneous impulse, we can easily perceive the force and velocity with which the tail will strike right backwards until it acquires the straight line; and that is the chief motion on which their progression depends. It is not by pulling the tail upwards towards the head, but the motion is chiefly by pulling the tail, from the head, to the straight line, or by successive parts of the column at once in that direction, that the impulses are given to the water, and the body of the animal is pushed forwards through that element.

In addition to the muscles I have now mentioned, you observe two other muscles which are longitudinal in their direction. The one is an upper longitudinal straight muscle (*Fig.* 136, *h*), above the upper oblique stratum, and extending along the median line of the back, from the tail to the dorsal fin. The other continued median fasciculus (*Fig.* 136, *g*, *i*) forms a longitudinal muscle, extending along the middle of the abdominal surface of the body, in the position of the recti abdominis of the mammalia; this inferior muscle, continued longitudinally, passes from the pelvis to the anal fin, and from the posterior part of the anal fin to the tail. Those straight longitudinal muscles, acting upon the median plane, tend but little to the general motions of the trunk of the body, from their position and their smallness. They are muscles which act chiefly on the median fins and on the pelvis, and which are but little required for progressive motion, and are feeble. We perceive, however, that those above must have some influence in giving a tension to the region of the back, in depressing the dorsal fin, and in bending up the tail towards the head; that those on the lower surface of the body must act upon the tail, upon the anal fin, upon the pelvis, upon the soft contents of the abdomen, and upon the organs contained in that cavity. But we observe that there are osseous parts which extend from the body of the fish, both from the upper part of the vertebral column, and from the lower part, as the median plane, which have extensive free motions – the rays of the dorsal and anal fins, which support and move their connecting membrane.

Now when we examine the surface of the interspinous bones, you perceive that their expanded lateral surface is covered with radiating muscles, which pass to each side of their middle, diverging downwards from each side of their median crest. Here, in fact, we have for each ray that series of oblique muscles which we see affecting the trunk of the fish, and they are disposed in such a way as to act with vigour upon the base of each ray of the fin. Thus we find, that the fins placed on the median plane are not forced by one muscle to bend to one side or the other, but that each ray placed on the median plane, has an extensive and differently directed series of muscular fibres for its own independent motion. Thus it is, that those median fins act like helms to keep the body of the fish in the best direction, in the direction which the animal most desires; we find that it can produce every the slightest modification in the direction of those rudders by this distinct series of muscles attached to the base of each of the rays of the median fins.

What I remark regarding the disposition of the muscles on the rays of fins placed on the median plane, almost applies to the rays of the fins in every other situation; to the fingers of the hand, to the toes of the feet, to the rays of the codal fins; so that the separate rays on all those parts are capable of acting with extensive and free motion.

We observe that the arms of fishes, or the pectoral fins (*Fig.* 137, *a*, *b*), are provided with distinct and powerful muscles. Those muscles appear to be more highly organized than almost any other muscles of the body, and are attached to the scapular arch (*Fig.* 137, *a*). They are placed near to the heart, near to the great fountain of the vascular system; and they have generally a more red colour than we observe in muscles which are more distant, more superficial, and much larger. They are the pectoral fins which are most exerted, most extensively moved, in the body of the fish, with the exception, of course, of the caudal fin; but the caudal fin acts, as you perceive, not so much by its own muscular apparatus, connected with its rays, as by the general impulse given by the whole free posterior part of the vertebral column,

Some slight analogy can be traced between the muscles connected with the hand in the fishes, and the flexors and extensors of the wrist and hand in the class mammalia. The ventral fins (*Fig.* 137) or legs of fishes are almost always moved by powerful muscles (*Fig.* 137, *c*, *d*)

Fig. 137

inserted into the pelvic bones, and sometimes extending forwards to the scapular arch. The arms and legs, or the fingers and toes, of fishes, act much more uniformly, much more in a mass, than the fins of any other parts of the body. We see that the dorsal fins and the anal fins act by moving the separate rays independently of each other, bending the anterior rays to one side, while the posterior rays are bent to the opposite side; but the pectoral and ventral fins mostly act by one impulse, like the hands of the cetacea.

We observe numerous muscles of considerable strength destined here for the motion of the large arched os hyoides (*Fig.* 138, *b*, *c*, *d*, *e*), and which are powerfully and extensively employed in the respiration of fishes.

Fig. 138

These also are developed in the first condition of amphibia, while they breathe like fishes, by means of water conveyed through the mouth, and propelled through the sides of the neck, passing over free external gills, attached, as here, to the os hyoides. Those muscles which affect thus powerfully the motions of the branchiæ through the medium of the os hyoides, undergo remarkable metamorphoses in the amphibia, but they remain permanently developed with their tadpole character in the class of fishes. Fishes, in fact, not only begin, but end their career as aquatic animals; therefore it is that we can anatomize the muscular system of the minute tadpole, of the *batrachia anoura*, with most ease, in all the different parts of this structure, in the large tadpole-forms of fishes. But fishes would be very imperfectly organized for the medium in which they reside, were all their motions through the deep dependent upon their muscular efforts. We see that by this disposition of their muscles they are beautifully provided with the means of moving in a horizontal plane, when they have acquired the proper level in the water. We see that their skeleton and their muscular system are but imperfectly developed for the motions of ascending and descending in the water, but have chiefly a relation to their progressive motion on a horizontal plane; thus we observe their muscular system is greatly relieved in ascending and descending in the water, by the development of the air bags, the rudiment of the human lungs, which we observe commencing among the worms, and appearing in the class of fishes in the form of a sac, with strong parietes, and with muscular fibres, often undivided, sometimes without aperture, sometimes with; sometimes with a *ductus pneumaticus*, by which it communicates with the stomach or with the œsophagus. This organ is for the most part filled with a gaseous fluid (not atmospheric air), which the animal secretes by a glandular structure, which we for the most part can easily perceive, from its high degree of vascularity, and which is particularly obvious in those animals in which it has no aperture for allowing the escape of the fluid. This organ contains sometimes oxygen gas, sometimes nitrogen in abundance; these varying in properties, according to the depths at which the animal resides. Those air-bags serve, by their dilatation, to expand the body of the fishes, and to render it specifically lighter, and thereby to carry them up to a greater height in the dense medium in which they live, in which they desire to move, or where their food is most abundant. Having arrived at this position, the fishes maintain that equilibrium, maintain the air-bag in that degree of dilatation or compression, which they desire, by a voluntary effort of the abdominal muscles, compressing the abdomen, and compressing thereby the air-bag, which runs along the upper part of the abdomen, immediately below the bodies of the vertebræ. When it desires to descend to a lower stratum for safety, or where, perhaps, the food is more abundant, it compresses more powerfully this air-bag,

thereby rendering its body specifically heavier, and then descends to the lower stratum. Thus you perceive, that a great deal of the muscular efforts of the fishes are relieved by the possession of this air-bag; that it can thus sustain its body at the surface of the water without any muscular effort, although its body, excepting the contents of the air-bag, is specifically much heavier than the water.

But many fishes lie at the bottom of the water, having no air-bag. Those fishes, such as the rays, lying at the bottom of the water upon their bellies, and having no air-bag to buoy them up to the surface, or to some intermediate stratum in the water, for the most part have their hands, as you see in these rays, enormously developed, that they may act with a powerful impulse upon the water, and strike it downwards, so as to carry the body upwards, a direction of progression in these species the reverse of that in which the ordinary fishes are destined to move. In the cod-fish dissected before you, you observe the muscles for progressive motion disposed upon the side of the body; in the ray the muscular apparatus is developed in such a way above and below, as not to move the body in the usual way, from side to side, but to move it from below upwards, or from above downwards. The whole lateral parts of the body in that animal are occupied by the two hands and their muscles, extending from the fore part of the face backwards to the anus, thus passing round the whole sides of the trunk. The part of the body in these rays which is inflected laterally, as in ordinary fishes, is almost a cylindrical portion, long and small, extending from the anus backwards, giving thus but a feeble impulse to the trunk by its means. Some fishes, however, are in a predicament very different even from these rays, for some are destitute both of pectoral and of ventral fins, and are destitute of air-bags; that is the case with these worm-like lampreys. Fishes of this kind you will find, in their living habits, to reside habitually at the bottom of the water, often in mud, or lying in other loose materials at the bottom of the sea. These present, in fact, the simplest form of fishes—the cyclostomatous fishes, such as you observe both in these marine and in these fresh-water lampreys. These have their body like a serpent, cylindrical in its form, with often a fin of considerable length, extending along the posterior part of the body upon the median plane. Those cylindrical cyclostomatous fishes, with their organs of motion thus imperfectly developed from the surface of the trunk, and the eels, a degree above them, approach so much in their outward form to serpents, that some have considered that the chain of development upwards in the animal kingdom was from the cyclostome and anguilliform fishes to serpents; while through the higher cartilaginous fishes, such as the rays in the sharks, the development upwards was to the anourous amphibia, with which these are closely connected in the development and form of many of their internal parts, particularly their organs of generation, and their circulating and respiratory systems.

Now, fishes vary so much in their outward forms, and in their living motions and habits, that you would naturally expect to find considerable diversity in the form and development of their muscular apparatus. We see some fishes with but imperfectly developed extremities for progressive motion, yet carried with great velocity through the sea, although not by their own muscular efforts. This we see in the heavy *remora*. We have here an oval muscular apparatus, developed at the upper and back part of the head, extending over a part of the back of the animal, in the form of a sucker. This sucker the animal fixes to the surface of bodies that are moving through the sea, to the surface of the large cetaceous animals, to the surface of boats or ships, or to rocks when the streams through the deep are rushing with velocity, by which they are carried through the water, so that you perceive they have the advantage, without moving their own muscles or small members, of thus passing rapidly through an extensive portion of the deep, whether to obtain food, to aerate their branchiæ, or to escape from an inconvenient position in the sea. This structure we find repeated in various other fishes. We see it in the common heavy lump-sucker, the *cyclopterus lumpus* of our own coast; but in that animal the muscular disk or sucker is found very differently situated; it is placed, you perceive, on the anterior or ventral surface of the trunk, and not on the back, as in this animal the remora.

We observe some of those fishes, as the chætodons, considerably compressed in the form of their bodies, provided with large air-bags, organized in every way for quick and powerful motions through the sea, and with the means of buoying themselves to the surface of the water, and of maintaining that position with ease. Some of these fishes actually feed on the flying insects of the air, and possess great power and dexterity in bringing down flies for their prey. Some feed upon the insects that fall into the water, or which they have the dexterity to bring down from the air.

Some are seen under the branches of bushes on the sides of waters, throwing a drop of water from the mouth, with great precision, and in such direction that it will pass above the insect, fall down upon it, and thus bring it down from the leaf of the branch into the water, or into the mouth of the fish.

By keeping the posterior part of the trunk in a more fixed condition than the anterior, many fishes can move their head laterally with great velocity, and wield their offensive weapons with much force, as we see in the sword-fish, and in the large saw-fish. Many fishes can move detached rays of their fins with great force, as we see in the *silurus* and the *balistes*; and as we see in the free anterior long dorsal spines of the angler-fish, by which it allures its prey. You observe the great magnitude of the hands or pectoral fins of that fish, as in the rays, from its lying concealed at the bottom of the water, without any air-bag to assist in their ascending movements. In the flying fishes the flexor muscles of their long expanded pectoral fins or hands are very powerful, to support them in flying through the air, to escape their pursuers in the deep; and they are powerful in the great arms of the Indian *pegasus*. But the muscles chiefly developed in fishes are the muscles of the trunk, which are analogous to those on the sides of the vertebral column in mammalia.

The motions of tadpoles and of perennibranchiate *amphibia* through the water, are similar to those of fishes through that element, and they are effected by the same means. But when the amphibia change the liquid for the aerial medium, the muscular development of the trunk is changed for that of the limbs. Now, in all these amphibious animals we observe the disposition of the muscular system at the earlier period of their lives to be remarkably similar to that of the fishes. As in the fishes, you observe a lateral line in this large tadpole of *rana paradoxa*, and that from this lateral line there diverges a zigzag line of muscular strata, extending along the sides of the whole of this long coccygeal region. You observe a similar transverse arrangement of muscular fasciculi on the back part of the crested triton, *triton cristatus* (*Fig.* 139), and extending obliquely over the abdominal surface of the trunk (*Fig.* 140). These are obviously disposed, as in the fishes, for the purpose of moving the coccygeal vertebræ, and the whole posterior part of the body, from side to side. They are attached by their tendinous aponeuroses to the inner surface of the skin, producing those transverse indentations which mark the limits

Fig. 139

Fig. 140

of the different strata. We observe that the upper and lower margin of this part of the body terminates, in the tadpoles, in a thin membranous part, like a continuous dorsal and anal fin; these continuing around the tail, form the whole posterior part of the body precisely like that of a fish, with the aorta and vena cava continued in the same manner, parallel along the tail.

The transverse and perpendicular disposition of these lateral layers of muscles is such, then, as, by their action on the vertebral column, to push the tadpole forward in the same horizontal plane. They are not directed in such a way as to move the animal upwards and downwards as if it breathed air. If those were its motions, the tail would be directed horizontally, as in cetacea; but here it is directed as in fishes, perpendicularly downwards. That condition of the muscular system is intimately connected, therefore, with their aquatic respiration, as it is in fishes. They have this disposition while they breathe by means of gills, and they lose this condition of the muscular system, and this fish-like termination of the body, when they come to respire atmospheric air by means of their developed cellular air-sacs. At an early period the os hyoides has numerous powerful muscles, and is seen to be moved by the young tadpole, as in the fish in the act of respiration. The apertures are small in the side of the neck in these batrachian animals or amphibia; and as the gills project from the neck, they have not the advantage in progressive motion which we observe derived from the act of respiration in fishes; for fishes,

by the act of respiration, moving these branchial laminæ and the branchial arches backwards, and striking forcibly backwards with their large flat operculum on each side, impel their body forwards in the same way as by the caudal fin itself; and those large osseous organs, especially on the side of the neck in the fishes, those opercula, often serve materially by their motion backwards to impel the fishes forward.

In the amphibious animals which undergo metamorphosis, we observe that those transverse stata of muscles, which occupy so extensively the posterior part of the body in their embryo state, are gradually absorbed with the bones themselves, and disappear; that the tail thus becomes gradually diminished to the form which it presents in the land salamander, becoming more rounded and short, before it is entirely absorbed and carried away. The coccygeal region of the salamander, then, that long-tailed land amphibious animal, presents you with an intermediate stage of this part, betwixt that of the tadpole or that which we see in the fresh-water tritons, and the total disappearance of that organ in the higher batrachiæ. Those which undergo the most complete metamorphosis, such as the frogs (*Fig.* 141),

Fig. 141

by losing entirely the posterior part of their body, move still through the water, with great facility, by the great development of their posterior extremities, which we observe generally to be much larger than the anterior extremities, and to have webs extending between the toes. You observe its *pectoralis major* (*Fig.* 141, *e*) divided into several bands, the *rectus abdominis* (*Fig.* 141, *s*) divided by transverse tendinous intersections, and the *transversalis* (*Fig.* 141, *m*) in its usual position covered by the *obliquus descendens* (*Fig.* 141, *o*). But the toads have shorter feet for their land life. Some of those amphibious animals never metamorphose, and never arrive at this anourous condition, but retain all those transverse layers of muscles along the sides of the coccygeal vertebræ, through the whole of life, as we see in the *menobranchus*, the *amphiuma*, and in this large *axolotl* from the lakes of Mexico, where it is so abundant as to be used for food. In this perennibranchiate animal you see a gigantic tadpole that never metamorphoses, that retains permanently all this muscular apparatus on the posterior part of the trunk for motion through the water, and all the muscular apparatus of the os hyoides for the motions of those branchial arches to which you perceive the large gills are still attached. This is the form of the respiratory apparatus of all the batrachia that do not undergo a complete metamorphosis. This you see in the external gills of the *proteus*, from the subterranean lakes of Carniola; again in the *syren*, from the rivers and lakes of America, the same as you see in the *axolotl* of Mexico. But in those which undergo a complete metamorphosis, and become equally adapted to move on the land or in the water, we observe a disposition of the muscular system on the posterior part of the body which causes the posterior extremities to resemble considerably in their proportions and development those of the human body. You observe in the dissected frog before you (*Fig.* 141), that the thighs and the calfs, as in the human body, are strong and muscular. You observe that the disposition of all the extensor muscles of the thigh, the leg, and the foot, here is very much like that of the corresponding extensor muscles covering the human legs. You observe also, that the same sets of muscles are here developed which are most powerful in the human posterior extremities; the *glutei* muscles which extend the femur, the *vasti* muscles, and the *recti* (*Fig.* 141, *p*) in front; and even the *sartorius* (*Fig.* 141, *q*) here crosses as in the human legs. But you will observe, as in the lower part of the leg itself in the frog, what is unusual even in the higher forms of vertebrated animals; the calfs are large, prominent, and muscular. This is obviously from the development of the usual extensor muscles of the heel joint, the *gastrocnemei* (*Fig.* 141, *u*), and the long flexors of the toes. The extensors are here more developed than the flexors,

because of the motions of the frogs in swimming through the water and leaping on the land; swimming by means of the legs, not by means of the arms, nor by means of a tail. This is the reason why we find this similarity in the development of the muscles of their legs, to those we observe more especially developed in man; more in man than in the other mammalia, because man requires so constantly to have the extensor muscles of the hip joint, the knee joint, and the heel, in action, in order to keep his vertebral column, and the whole trunk, raised perpendicularly upon the posterior extremities. In man there is thus, obviously, a great weight pressing down constantly upon those joints, tending to force them into a state of flexion, and if he were not provided with this powerful development of these extensors of the legs, he would be forced to assume the semi-erect position of quadrumana, or have to fall down upon his fore extremities like the lower mammalia. Hence the resemblance in the muscles of the legs in these two beings, so remote from each other in the scale of animals, and so dissimilar in their general form, their kind of movements, and their whole living habits.

The muscles of the arms are also strongly developed in the frogs and toads, for swimming, leaping, and climbing; and the ends of the fingers and toes are singularly enlarged in the numerous climbing *Ayla*, to assist their ascending the trees, from which they are often seen hanging down by their hind feet, intently watching the approach of their prey in the brook beneath the overhanging branches. The extremities are short and muscular in the land salamanders, which have no other organs of support or progression, but they are generally more slender in the tailed amphibia, as the triton (*Fig.* 139, 140), which use that organ in the water. The muscles of the trunk which support and compress the abdominal viscera in these ribless animals, are powerful, as in fishes, both in the land and in the aquatic species, as you see in the frogs and the tritons.

Thus we see, that in the fishes and the aquatic amphibia, the muscles of the vertebral column, or of the trunk, are almost alone developed or required, but that by changing their residence from the dense element of water to the attenuated air, the muscles of the extremities and the whole organs of support assume a strength and development proportioned to the rarety of the new medium through which the trunk has to be carried.

HOTEL DIEU, PARIS.

CLINICAL LECTURES on SURGERY

DELIVERED BY

BARON DUPUYTREN,

During the Session of 1833.

Revised (before translation) by the Baron himself in the fasciculi of his "Leçons Orales de Clinique Chirurgicale," published periodically by G. Baillière, Paris.

ON FALSE ANEURYSMS OF THE BRACHIAL ARTERY.

It seems to be an opinion, Gentlemen, entertained by many practitioners, that venesection is too simple an operation to merit any peculiar attention; and this view results from the kind of contempt with which the ministering part of surgery is treated. Such is the cause of the numerous accidents we have witnessed within the last twelve or fifteen years. Our hospitals are filled with pupils, who neglect to bleed when an opportunity is offered, and these are followed by a still greater number of young men who become externes, without ever having seen the operation practised. How often do we see, both in the wards of an hospital, and even in private practice, the skin perforated by five or six incisions, without the vein being opened! and it is to this awkwardness that we should attribute the phlegmonous inflammations which so frequently supervene in cases of this kind, the great number of phlebites which have become common since that period, although the disease was formerly comparatively rare. Neglect of cleanliness, and the bad condition of the instrument, are often an additional cause of these dangerous results; finally, to a disregard of these first principles, we are to attribute the formation of those diffused or circumscribed arterio-venous aneurysms, to which we have often directed your attention. You have already seen two individuals operated upon and cured of similar aneurysms, and we shall, no doubt, have an opportunity of showing you additional cases in the course of the year. I can safely affirm, that for the last six years not one has passed by without my being consulted at least twice for accidents of this kind, and if we suppose the same proportion of cases in the practice of other surgeons, you may form an idea of their frequency. However, this accident may be prevented by very simple precautionary means. You should lay it down for yourselves as a principle—1st. That the operation should not be performed before the pulsations of the artery are felt. 2nd. That the vein which lies

over the artery, should never be opened, but that another must be chosen.

It is true that others are sometimes found with difficulty, and do not always give as much blood as we could wish, but these are very slight inconveniences, when compared with the accidents just alluded to. Surgical writers are in the habit of employing the term *false aneurysm* to designate a tumour formed by the blood contained, either in the sheath of an artery, or in the cellular tissue surrounding it. The disease sometimes manifests itself immediately after the wound, but on other occasions an interval more or less prolonged exists between the injury and consequent aneurysm. The disease has been distinguished into two species—1st. *Primitive* or *diffused* aneurysm; 2nd. *Consecutive* or *circumscribed* aneurysm, differences which are founded on the period and manner of effusion of blood from the cavity of the vessel. There are other distinctions, which depend on the parts composing the aneurysmal cyst; these belong exclusively to false consecutive aneurysm. Sometimes the parietes of the sac are formed by the surrounding cellular tissue; the lamellæ of this organic element, distended by the blood, which is extravasated slowly, and drop by drop, are applied one upon the other, and form at length a cavity of varied dimensions, which communicates with the wounded artery by a narrow aperture. In other cases, the sheath of the vessels cicatrizes during the use of the bandage, while the edges of the wounds occupying the inner coats either remain separated, or if they touch are not united by a solid cicatrix. When the compressing apparatus is removed, the lateral impulse of the blood elevates the cellular sheath, and separates it from the middle coat, so as to form a cyst for the aneurysm. In other cases, again, the edges of the wound are united by a newly-formed membrane, the product of an albuminous exhalation. You will find in books, reports of cases where the wound of the vessel was for some time obliterated by a small clot of blood, the circumference of which corresponded to the edges of the wound, its base to the sheath, and its apex to the current of the blood; but as soon as this clot is displaced, either by any movement of the limb, or by the impulse of the circulating fluid, a circumscribed false aneurysm is formed. I have frequently had occasion to see patients affected with sacciform false aneurysm, and who were treated by Anel's method; in some the operation failed, and was repeated a second time; and one patient was obliged to submit finally to amputation.

True aneurysm, Gentlemen, of the brachial artery at the fold of the arm, is a disease which is extremely rare; it would indeed seem, that the case reported in the clinique of Pelletan, is the only authentic one on record. The two observations of Paletta and Plagani are not sufficiently detailed or precise. We may say the same of the cases contained in Hodgson and Saviard. This is not the case with respect to primitive or consecutive false aneurysms occupying this region. The awkwardness or distraction of pupils while bleeding, frequently gives rise, as I have mentioned, to a wound of the artery, and for a long time no other species of aneurysm was known. Galen, Celsus, Aetius, have described them, and the means to be employed for their cure. It is astonishing how operations of the kind could have been so often repeated without giving some idea of the circulation. Even for a long time after the period of that great discovery, it was not known by what means the course of the blood was carried on, after the main trunk of the artery had been tied. The anastomoses of the vessels were not well established before Heister's time; up to that period the cure was explained on the supposition of a second brachial artery. Sharp particularly supported this theory, but Molinelli, in the Acta of Bologne, and Charles With, pointed out the agents of collateral circulation with sufficient precision. At a later period the injection of a limb, in which the brachial artery had been spontaneously obliterated, furnished Pelletan with an opportunity of demonstrating the passage of the blood through the anastomosing branches. Half a century has produced immense ameliorations in this part of the science; at the present day everything is laid down with precision, and the surgeon has to pursue a course which is fully established on experience.

The most common cause of false aneurysm of the brachial artery is, as we have said, the injury of the vessel during the operation of bleeding. The accident is often the effect of a mistake. In some subjects the artery is very superficially placed, and resembles the vein, in volume and general appearance, very closely, but by placing the finger on the vessel, you feel the pulsation which distinguishes it. Every vein which runs in the neighbourhood of an artery, and in the same direction, should be avoided. MM. Sanson and Begin, in their excellent treatise on operative medicine, say that we ought scarcely ever to bleed over the place where an artery passes; but I say never open the vein in such a situation. I have always protested against the practice pursued by many surgeons of opening the brachial vein, and

have shown that phlebotomy should be performed on any other vessel rather than that; in short, when it is not easy to find one in the fold of the arm, it is better to seek a vein in the fore-arm or even the hand. The brachial artery may be injured by the lancet in different ways: sometimes the instrument penetrates the two vessels, artery and vein, at a point where they are not exactly in juxta-position, and an effusion of blood takes place. Sometimes the wound establishes a communication between them, and gives rise to an arterio-venous or *varicose* aneurysm; the latter species differs from all the others determined by the same course. The considerations which you have just heard have arisen from a case of this kind which presented itself the other day, of which I shall now give you a brief history.

Case.—False Consecutive Aneurysm of the Brachial Artery, produced by Bleeding.

A man, 40 years of age, of good constitution, was bled about a month ago, by a sage femme, who perforated both the vein and artery; the blood spouted forcibly to a great distance, and was of a ruddy colour. In general the jet of venous blood does not exceed one or two feet, and very rarely reaches three, but when an artery is opened, the stream is much more rapid, and sometimes we see it driven to the distance of five or six feet, mounting to the ceiling or staining the opposite wall. The manner in which the vital fluid escapes is also calculated to throw light on the nature of the injury. It is discharged by jerks, quite different from the uniform stream of venous blood, at least in the commencement; it may however happen, that the jerking appearance of the jet depends on the immediate position of the vein upon the artery; in such case the pulsations of the latter are communicated to the former, and at first view we might think the artery was opened. I remember to have been called upon several years ago, in all haste by a distinguished physician, who had just bled one of his patients; he thought he had wounded the artery, because he saw the blood escape in a jerking stream. I soon discovered the cause of the error, but the physician still persisted in his opinion, and even to the present day, believes the artery to have been injured. It appears the midwife recognised the nature of the accident in the case of which we speak, for she immediately applied strong compression over the wound, by means of a tight bandage and graduated compresses. The fore-arm and hand of the patient soon became swollen and numbed, probably in consequence of the bandage, and I also perceived a large ecchymosis, produced by the effusion of blood into the cellular tissue. The opening made into the artery was, to all appearances, very small, and its edges were brought close together by the compression employed. About three weeks elapsed before the aneurysm began to develop itself, being first announced by the formation of a small tumour, which presented a sensible movement of advance and retrocession, corresponding with the arterial pulsations, and at the end of a month it had acquired the magnitude of a pigeon's egg. On examination we found, that one-half of the tumour was prominent, while the other moiety was concealed in the substance of the arm.

You may here ask, how was this tumour formed? When an artery has been wounded by a cutting instrument, as a lancet, the edges may be brought together by compression; but when this is removed, and the patient begins to move his arm, the blood separates the edges, the flood escapes, pushes before it the lamellæ of the cellular tissue, and, finally, forms a sac; the latter gradually enlarges, and communicates by a small opening with the interior of the vessel. This has taken place in the present instance; the blood was at first compressed, it then acted on the vessel, escaped, formed a sac, and now the symptoms of aneurysm are disclosed. If you take a side view of the tumour, you will easily see its elevation and depression, and the finger when placed on its summit is equally raised alternately. The movements become more apparent when the arm is flexed; on the contrary, when it is firmly extended, the pulsations are masked in a great degree. Some years ago it was thought that these two symptoms indicated, in a certain manner, the presence of an aneurysm; but we now are convinced that they may arise from the manner in which a tumour is situated over an artery, hence the arrest of pulsation on compressing the vessel is not to be regarded as a positive sign. If you continue your examination of the patient, you will see that the tumour terminates in a point where the skin is very thin. Should inflammation set in, the results might be dangerous; the skin would become more thin, might give way and produce an hemorrhage of a fatal nature. We are, therefore, compelled to employ a quick and efficacious means for preventing a termination of this kind. Compression has been already tried without success; besides, this method requires a great delay, and may determine gangrene. In the present case, moreover, it is inapplicable on account of the thinness of the skin;

we are, therefore, compelled to have recourse to the ligature. But how apply it? Without doubt it would be more certain to place two ligatures, above and below the wounded point, because we should thus avoid the re-establishment of the circulation by the collateral branches, which sometimes takes place after operating by ANEL's method; but this is attended with several inconveniences. In fact, after having suspended the course of the blood by compression, it would be necessary to incise the skin over the tumour, open and empty the sac, seek the wound of the artery, which is not always easily found, and tie the vessel without embracing the nerve; in doing which we are much embarrassed by the effusion of blood. Even supposing the operation attended with the desired success, we make a large wound in the integuments, which may determine inflammation of the parts.

We remarked how much the operator is embarrassed by effusion of blood; this circumstance is of sufficient importance to arrest our attention for a few minutes. During the course of a surgical operation, we are almost always certain of arresting the circulation of arterial blood by compression; but the venous blood is not acted upon; the reason is simple: in one case we have only a single vessel to occupy us, in the latter it would be necessary to compress a multitude of different branches before we could hope to command a venous hemorrhage. Since the double ligature, although more certain, is long, and presents many difficulties, we are necessarily compelled to employ the method already spoken of, and which consists in placing a single ligature above the tumour. This process is attended with much fewer inconveniences than the former, for it enables us to avoid the infiltration of blood and most of the obstacles just noticed. Hence it is now generally employed; but I must warn you that it is certain of failing, if applied where the artery communicates freely with collateral branches. We have frequent occasion to observe this in aneurysms of the primary carotid or its subdivisions. The ligature placed below the tumour in this case will at first suspend the pulsations, but they soon return; and a similar result may arise in aneurysms situated in the fold of the arm.

Our mind is now made up as to the method of operating which should be pursued in the present case; but before putting it into execution, let us give a brief description of the anatomy of the part in which the disease is situated. The region of the arm comprehends several layers of tissues, placed one over the other in the following order:—externally we meet a fine envelope, and a cellulo-fatty couch, penetrated by a great number of lymphatic vessels, veins, and superficial nerves. The brachial aponeurosis forms a third layer, and more deeply we find three different sheaths, two belonging to different sets of muscles; the third, which principally concerns us to study, is common to the biceps above, and the coraco-brachialis, with the brachialis anticus below; between them we perceive the external cutaneous nerve traversing the coraco-brachialis muscle high up. The external inferior portion of this sheath contains the trunk of the radial nerve and an arterial branch; on the inner side it embraces the humeral artery with its two accompanying veins, and the median nerve; it is most important to remember the relations of this latter with the vessels; above, the nerve is external to them, in the middle of the arm it is anterior, and lower down it is internal; hence, above the middle third of the arm we should seek the artery on the inner side of the median nerve, and outside the ulnar. In the middle of the arm it requires great care to avoid comprehending the median nerve in the ligature, as the vessel crosses behind or before it; lower down we should always seek it outside the nerve; and in this part it has no relation of any kind with the ulnar nerve. An important guide for arriving rapidly at the artery, is derived from the manner in which it runs through the whole length of the limb, close along the inner edge of the biceps muscle, being contained in the same sheath with it. Hence, by opening this sheath on its inner side, we easily find the brachial artery, bearing the relation already pointed out to the median nerve.

Operation for the Aneurysm.—Ligature of the Vessel.

Having thus called the attention of the pupils to the anatomical disposition of the parts, M. DUPUYTREN proceeded to the operation, which he performed in the following manner:—the patient being extended on his bed, and the affected limb demiflexed, an incision three inches long was made on the inner and inferior part of the arm; the skin, cellular tissue, and aponeurosis, were successively divided; a very small artery was cut during this step of the operation. Having arrived at the sheath of the vessel, the operator seized it with a forceps, elevated it, and opened it with a bistoury. The opening into the sheath was now enlarged, to the extent of two or three lines, with the bistoury directed on a grooved sound, and the extremity of a flexible silver sound was passed under the vessel; this latter served

to guide a needle-headed stylet armed with a ligature. In order to avoid injuring the nerves and veins which accompany the artery, the instrument conducting the thread should always (M. DUPUYTREN observed) be introduced between these parts and the artery. The operator now drew the ligature gently, and the pulsations of the tumour immediately ceased: they returned on the ligature being relaxed. Being now certain that the injured vessel was comprised in the ligature, it was drawn tight and fastened with two simple knots; the wound was then cleaned and its edges were brought together by a bandage. M. DUPUYTREN advised not to dress the wound definitively, until it was certain that the small artery would not furnish any hemorrhage. During the whole period of the operation the patient never uttered a single cry, a circumstance showing that the nerves were not included in the ligature. Although a ligature was applied in the present instance with much facility, we could not prevent ourselves from feeling a little uneasiness for the patient: the caliber of the artery was very small, and it was possible that two brachial arteries existed, as we had once occasion to remark, and communications might thus exist between the superior and inferior ends of the vessel. The vein was very large and tense: and as this appearance did not depend on any compression, it was to be feared that a small narrow opening between the artery and vein, too small to produce a bruissement, existed. No symptom, however, of such a communication appeared during the operation. For ten days compression was employed by means of a pyramidical compress, after which the dressings were removed to examine the tumour; it had diminished a little, and did not pulsate in the least. Five days later the wound was nearly united, with the exception of the point through which the thread was to be discharged; in short, everything announces that the operation will be followed by success.

(*To be continued.*)

NEWS FROM AMERICA.—ANOTHER SERPENT.—A paragraph has been going the round of the English papers stating, that a serpent several feet in length had lately been enticed out of the stomach of a man in America, by a physician of that country. The seduction of this serpent from its deep abode is not very wonderful. Lies are easily manufactured for the greedy lover of the marvellous.

CONTRIBUTIONS TO PATHOLOGY.

No. V.

By JOHN ALEXANDER, *M.D., Manchester.*

THE CEREBRAL PATHOLOGY OF CHILDREN.

(Continued from page 930, last Volume.)

ALTHOUGH acute hydrocephalus, from the very constitution of the human race, must have existed at all periods of time, in the early records of medicine there are few observations to be found which indicate anything approaching to a familiarity with that important disease. A circumstance so singular must probably be referred to the difficulty which has ever attended the diagnosis of infantile cerebral disorders; and the few post-mortem examinations which the first cultivators of medical science are known to have enjoyed.

In later days the attention of Morgagni, Reush, Schenck, Haller, Blackmoor, and Petit, was successively awakened to the malady; but as to its intrinsic nature, causes, and treatment, little was distinctly known previous to the researches and writings of Paisley, Whytt, and Cheyne. To these last-mentioned cultivators of pathology we are undoubtedly indebted for the first distinct views of this interesting disorder. Nor in the grateful enumeration of those who have contributed to our knowledge of acute hydrocephalus, should Dr. Golis of Vienna be forgotten. His splendid monograph on the complaint, translated by the late lamented Dr. Gooch, will, I feel convinced, be regarded by posterity as one of the most valuable contributions ever offered to practical medicine. But to proceed.

Infantile encephalitis, or acute hydrocephalus, is essentially a disease of early life. In a paper, written by Dr. Mills, a short time ago, the details of twenty cases, terminating fatally, are published; and, from that paper, it appears (in reference to the ages of the several children) that twelve of the twenty died before attaining the sixth year; seven between the third, sixth, and eighth years, and one at the age of twelve. The truth is, hydrocephalus is observed both at the early and late periods of childhood. Indeed, the sudden deaths occurring to very young children are more referable to this disorder than is generally imagined; and, on the other hand, examples of acute hydrocephalus are occasionally observed, even after the fifteenth and twentieth year. In the very young the disorder sometimes runs its course, or rather, I should say, proves terminal of

existence, in as many hours as it generally continues days in those of a more mature age. It is of all infantile complaints the most common and the most fatal. According to Dr. Coindet, twenty thousand children annually die from its ravages in France; whilst on reference to the annals of the Universal Dispensary in London (published by Dr. Davis) it appears, that of every forty-five cases, terminating unfortunately, no fewer than eight are distinctly referable to this source of mortality.

Acute hydrocephalus I shall venture to define as, a specific inflammation of the brain, leading to serous or lymphatic effusion. This malady presents three stages, a *congestive*, an *inflammatory*, and an *effusive* state. Some writers, Dr. Golis, for example, add a fourth, or stage of *palsy*, which, I apprehend, is better omitted, as it frequently happens that the child dies before any paralysis is observed; and, moreover, when present, the phenomenon is a mere effect unconnected with the causation of the disorder, and, therefore, only to be regarded as a morbid symptom consequent upon the disease. The three stages mentioned are those most frequently observed, and those through which, in the majority of cases, the child passes; but it is occasionally noticed that distinct inflammatory symptoms constitute the first evidence of the child being ill, as it does, sometimes, doubtless, happen, that an effusive state has supervened without a preceding inflammatory or even congestive one. We see an example of the former in metastasis of various affections, which, suddenly leaving their original site, fall upon the brain; and, as to the latter, in young infants, observation has convinced me that effusion does occasionally take place without the occurrence of the usual preceding morbid affections. Dr. Golis has called this latter, or suddenly effusive form of hydrocephalus, by the expressive name of the "water stroke." "To it," remarks that writer, "belong all those depositions on the brain which arise from small-pox, measles, erysipelas, and other febrile eruptions; and also those convulsions which follow the sudden cessation of chronic or habitual discharges, the repulsion of chronic eruptions, as crusta lactea, tinea, discharges from the ears and the like, or from diarrhœa, dysentery, general perspiration when the same has been suddenly stopped, without previous perceptible turgescence or inflammation. In all these cases of sudden death, there is found, on examining the bodies, an effusion of fluid in the head, for the most part in the ventricles of the brain itself." Whilst, however, irregularities in the course of the complaint should be acknowledged, lest the student of medicine be misled, for practical purposes it will be most useful to consider the disorder under its three generally observed forms.

The congestive symptoms constituting the premonitory stage of infantile encephalitis are as follows. The indisposed child seems languid, listless, sometimes surly and irritable; and is observed to take occasional deeply drawn sighs. Its pulse is *slow* and unequal. The countenance is various, sometimes hectically flushed, at other times unusually pallid. The child's sleep takes place at unusual hours, affords little refreshment, and is accompanied by an unequal respiration, and slight disposition to delirium. The skin feels hot; the tongue is observed to be coated with a thin white film; the fauces are dry; there is considerable thirst and little appetite. The breath is peculiarly offensive. The child's alvine evacuations are few and irregular, both as to time and appearance. Considerable exacerbation of the febrile symptoms is generally observed in an evening; and in this stage, children of six and seven years of age I have known to particularly complain of the weight of their heads, of giddiness when in the erect posture, and of pains in the various parts of the body; whilst younger children may be observed to rock about their little heads (the anterior or fontanelle of which is not unfrequently prominently tumid), and to become suddenly silent in the midst of loud cries. These last-mentioned symptoms (first particularly adverted to by, I think, Dr. Thomson) are very characteristic of impending mischief.

Should the disorder progress, more unequivocal phenomena mark the night-stage or presence of cerebral inflammation. The child complains of pain, chiefly referred to the forehead; upon examination the head feels unusually hot, particularly at the fore and back parts of it. The countenance is, in some cases, flushed, with slight conjunctival suffusion, but more frequently pallid, anxious, and shrunken. The child's hearing is acute; the eye is turned upwards under the lid, which appears as if it were dropped. The pupil expands frequently during the occasional convulsions. There is more or less moaning, interrupted occasionally by those shrilly screams so characteristic of hydrocephalus. Grinding of the teeth is not unusual; the tongue is coated and dry; the skin is hot; the pulse is unequal in strength, quick, intermitting, and, on disturbance of the child, hurried to double its usual rapidity. (On this last pathognomonic feature of the disorder,

Dr. Cheyne remarks, "the pulse beats, perhaps, ten or twelve strokes, at the rate of 60, and the next six or eight at the rate of 100. The same kind of pulse has been observed after poison has been swallowed. At a first visit, when I have found the child asleep, I have several times detected the disease by this state of the pulse.") There is the greatest disposition to sickness on the slightest motion. The child's digestion is markedly impaired, food passing almost unchanged, and accompanied by a remarkable fœtor. The abdomen is shrunken, frequently referred to as the seat of pain; and the bowels are constipated. The urine is scanty, high-coloured, and very often, on standing, throws down a copious sediment. When the little sufferer awakes from its short and unrefeshing slumbers, it is never satisfied with its position, one moment wishing to be on its mother's knee, the next desiring its crib; vainly thinking by variation of posture to remove its uneasy sensations. The symptoms indicative of the effusive stage are still more marked; the countenance is changed; the eyes' pupil is dilated and insensible to light, or, as is occasionally observed, irregularly contractile. The body is extremely emaciated, bathed in cold perspirations, and very often ecchymosed in various parts. The lips are dry; tongue coated with a brown fur; and deglutition almost impossible. The child turns the palm of the hand outwards, and passes it to the cheek when it is forcing the offered medicine or drink from its mouth. The pulse rapid, feeble, and intermitting; the natural evacuations are involuntary; the stools dark green, and glairy. Lastly, more or less subsultus, spinal spasms, and general convulsions, are observed to be present in this closing scene of the hapless child's sufferings. The animal heat lessens; the heart falters; the bronchial râle is heard; the previously distorted countenance becomes placid, and the distressing scene is closed!

From the date of the first symptom of indisposition, Dr. Whytt calculated the general duration of the malady to be five weeks—Dr. Fothergill estimated it at three. The fact is, the disorder's duration, as well as its degree of intensity, varies in almost every two successive cases.

Medical writers generally state that a child attacked with acute hydrocephalus will pass through the stages just described, and that on their post-mortem examination certain appearances will probably present themselves. For example—that the dura mater will be found more adherent, and the pia mater more turgid, than usual; that lymph will be found between the membranes; a larger or smaller quantity of fluid (uncoagulable by heat) in the ventricles; each choroid plexus blanched and flabby; that the cranial bones are frequently separated; that tumours of various kinds are discovered in the brain, cerebellum, or attached to the membranes; and that where the cerebral substance has been inflamed, and a large effusion has not taken place, the brain itself, on cutting, presents a great number of minute bloody points; and, if the complaint has been protracted, certain portions of it are softened. Now all these appearances, in numberless cases, have doubtless been observed. To most of them, from personal experience, I can individually testify. But (as before stated) it not unfrequently happens that children die in the *first stage* of this malady; and it has occurred to the writer more than once to see young children, labouring under the premonitory symptoms, seized with a fatal convulsion; and upon being opened presenting no tumours, no effusion—in a word, little observable unnatural condition of the brain, further than perhaps a slight apparent disposition to a congestive state of the cerebral mass. Again, many children die in the *second stage* of the malady, and the sole morbid condition, on autopsy, is found to be a state of cerebral inflammation. Further, should the child's decease take place in the effusive or *third stage*, the post-mortem inspection presents the characteristic morbid appearances more developed. Hence, it obviously results, that the appearances after death must, in speculating on the nature of the disease, be regarded not merely *per se*, in any given case, but in relation to the time the child has lived; and not merely are they subject to the *duration* of the disorder, but to the constitution of the sufferer. Acute hydrocephalus, in a previously healthy child, presents one character; in a delicate strumous child, quite another; and in both the disorder differs from the encephalitis of the adult. If this were not the case, active depletory measures employed early would be as successful in the child as they are found to be in the man. Yet they are otherwise. Cerebral congestion and inflammation, in early life, are assuredly not as tractable as at later periods of man's existence. The post-mortem evidence goes far to show, that the cerebral condition or status in the child labouring under hydrocephalus, and the adult under encephalitis, are not strictly analogous, as shown by the effect produced. In the child the effused fluid is scarcely ever flaky, or the substance of the brain softened, whilst, in the head of the adult, these appearances are every day observed. Whence is this difference, and

is it one that invalidates the presumed inflammatory character of the disease? The answer involves reflections of interest.

A belief that hydrocephalus is essentially an *inflammatory* disorder, is founded —1st. On the character of the symptoms during life; 2ndly. On the observed efficacy of antiphlogistic medicines. 3rdly. On the beneficial operation of counter-irritants and evacuants; and, 4thly. On the general character of the appearances after death. Instances may, and do, occur, of those symptoms being indifferently marked—of antiphlogistic remedies, vigorously employed, failing—and of few indications of preceding inflammation being observed on the opening of the head. A *subacute* form of the complaint, however, answers the first of these objections—viz. the indistinct character of the symptoms. As to the second, anti-inflammatory remedies failing, do they not do so frequently in tubercular degeneration of the lungs (an admittedly inflammatory affection)—do they not do so in glandular diseases of the young—and is it to be wondered at that they should do so in cerebral disease, occurring at a period of life when the constitution and particular structure are both (as shown in the preceding contribution) opposed to them? I apprehend not. And, lastly, as to little evidence of previous inflammation being traceable on autopsy, when a child dies in the second stage, that evidence *is* found; and if it survive through the usual course of the malady, one of its undoubted effects, *effusion*, is almost invariably present; and the mere absence of an apparently inflammatory state, on autopsy, is no conclusive argument against either its previous existence, or the essentially inflammatory nature of the morbid affection. The usual duration of hydrocephalus is from a fortnight to three weeks, and in that time it is obvious that the cerebral mass may have undergone considerable congestion and inflammation, although, on afterwards inspecting the head, we perceive neither the one nor the other. Dr. Monro, of Edinburgh, lately attempted to revive the old doctrine of hydrocephalus being the effect of debility, as formerly thought by Drs. Whytt and Darwin, and not the result of inflammation. His ingenious arguments in support of (I had hoped) an exploded doctrine, met, from the pen of Dr. Mackintosh, a most complete and masterly refutation, as can easily be seen by referring to two papers published in this Journal. Debility, indeed! Well may we exclaim with a late writer, "The bugbear debility, the Circe of fevers, which has been more hurtful to suffering humanity than earthquakes to the physical world."

Dr. Rush has written to prove, that the disease in its first stage is the effect of causes which produce a less degree of that inflammation which constitutes phrenitis; and that its second stage is the effect of a less degree of that effusion which constitutes serous apoplexy in adults. The first morbid status he has termed phrenicula; that existing in the latter stage, chronic apoplexy. Commenting on this view of Dr. Rush, Dr. Cheyne remarks as follows:—"It ought to be recollected, that hydrocephalus scarcely ever affects the adult, and frenzy as seldom occurs in childhood. They are diseases of different conditions of the brain, the nascent and adult state of the organ. Frenzy is an endemic disease. Hydrocephalus I should suppose to be a very general disease; at least it prevails in very different climates, both in the new and in the old world. Hydrocephalus I have oftener seen in children with dark eyes and complexion; phrenitis is the disease of the sanguine and the choleric. All this should imply something different in the essence of the two diseases. Lastly, it should be recollected, that in hydrocephalus the centre of the brain is the part chiefly affected; at least in most cases we find the effusion on the surface of the brain bearing no proportion to that of the ventricles, and the cortical part of the brain sound, while the central parts are broken and dissolved; whereas the effects of phrenitis are more superficial, being sometimes apparently confined to the membranes. The assertion of Dr. Rush, that the second stage of hydrocephalus is the effect of a less degree of that effusion which produces serous apoplexy, is gratuitous; and the violation of nosological propriety, in giving a distinct name—chronic apoplexy—to this stage, is unnecessary; for it is not effusion which produces apoplexy, neither are the symptoms of the second stage of hydrocephalus the effect of effusion; nor is the effusion less in degree in hydrocephalus than in apoplexy."

Granting due weight to these arguments, I cannot but think with Dr. Rush, that hydrocephalus is truly an inflammatory affection of the brain. But, whilst so judging, must it be inferred that the disorder is strictly analogous, in the opinion of the present writer, with adult encephalitis? Certainly not; I believe, as the preceding contribution will show, the structure of the child's head to be in a status different from that of the adult, and its functions and disorders to be materially modified by its imperfect condition. But, admitting thus much, I feel anxious to advocate the inflammatory nature of the disease, knowing, as I do, that professional

opinion is somewhat divided on the subject; feeling, as I do, that treatment based on a different view will prove inefficacious; and believing, as I do, that if the inflammatory symptoms are indistinct during life, or the appearances inconclusive after death, they are so, not from the doubtful nature of the disease, but from the peculiar organization of the young child's head. Moreover, Sprengel has satisfactorily demonstrated, and even Dr. Monro admitted, that a strumous diathesis is the great predisponent to hydrocephalus. Now granting this fact, and recollecting the character of strumous inflammation in other parts of the human economy, is not much of the obscurity attending the pathology of the disease on this simple inflammation, accounted for? I really think it is. Infantile encephalitis, though, as before stated, a disease of great frequency, is not uncommonly confounded with others. For example, with vermination, with typhus, with infantile remittent fever, and occasionally with chronic hydrocephalus. The appearance of the evacuations, the condition of the abdomen, the state of the pupil, and the character of the pulse, enable the attentive practitioner to distinguish the complaint from the first of these. In hydrocephalus the evacuations are few, in vermination frequent and slimy. In vermination the abdomen is tumid, in hydrocephalus generally otherwise. In the latter the pupil is always greatly affected, in vermination only occasionally so; and, lastly, the pulse in vermination is but little disturbed, whilst in impending hydrocephalus it is generally disturbed, not merely as regards its frequency, but as presenting an intermittent character. The first stage of the complaint is closely simulated by phenomena arising from repletion, or improper food, causing, directly, disorder of the stomach, and, indirectly, cerebral congestion.

Of all diseases, however, the morbid phenomena consequent upon worms (as shown in a preceding paper), most nearly approach the premonitory symptoms of hydrocephalus, for which they doubtless not unfrequently pave the way. As to the diagnosis between the subject of this contribution and typhus, I shall content myself with quoting the simple, but practically valuable remark of Dr. G. Gregory. "The only manner," observes that useful writer, "of distinguishing between the diseases, is by bearing steadily in mind, that idiopathic fever is not common in young subjects, and that hydrocephalus is. Unless, therefore, the evidence be very unequivocal (as where the disease can be distinctly traced to contagion), the symptoms should always be attributed to hydrocephalus and not to typhus." Minuter diagnostics might, it is true, readily be laid down; but reflection on the two diseases, and, still more, a little observation of the two maladies, will readily suggest them. And equally applying the observation to the infantile remittent and chronic hydrocephalus, let us proceed, without further delay, to some practical considerations.

The question as to acute hydrocephalus being curable, is one very frequently asked by men of great experience. Conversant with this fell enemy of the young, they observe how impossible a thing it is, in many instances of recovery, to determine satisfactorily whether the *essential* constituent of the disease has, or has not, been present; they know, from reiterated observations, how difficult a thing it is to check even the undeveloped diseases, and they are painfully sensible how almost invariably, when effusion has ensued, it baffles every measure which anxiety can suggest or remedial art supply. On the other hand, we daily read recorded cases of acute hydrocephalus cured, and, doing so, can scarcely fail to be surprised at the apparently simple means by which a task, considered by the bulk of the profession so difficult, has been achieved. Whence is the discrepancy? Whence is it that what is so insuperable to one practitioner, should be so easy of performance to another? Whence is it that instances of the malady treated with everything that could promise good, should prove fatal; whilst, in other examples, it appears to have yielded to remedies generally considered as all but inert? The answer to this question, I apprehend, is to be found in the vague state of medical phraseology, or, rather, medical logic. If a child have laboured under the premonitory or congestive stage of the disease, on its return to health the little patient is said to have been cured of acute hydrocephalus. If the inflammatory stage or active aggression of the complaint, in another instance, has been promptly met and got under, it is equally asserted that a wonderful cure has been effected. But unless a qualified explanation of these supposititious cases accompany their relation, how delusive are they to the student, how prejudicial to the science of medicine! Fischer, Percival, Whytte, Cheyne, Mosley, and Quin, have severally recorded successful cases. But their records are what medical records should be, not unqualified assertions, but the dispassionate reflections of thinking and impartial men. "If this disease," writes Fischer, "fatal in most cases, is now and then subdued by art, it is only when it is detected in the first moments

of its origin." A sentiment echoed by Quin. Dr. Whytt declares that he did not save more than one in twenty cases. Cheyne observes, "when the disease is discovered early, it is a dangerous, not an incurable malady;" by implication saying, that when developed it is mortal.

Formey relates that, in the effusive stage, he has seen *one* child recover. Thomson, Golis, and many other eminent authorities, assert that acute hydrocephalus, when fully formed—that is, when effusion has ensued, "yields to no remedy." My own humble opinion is, that the disease is, occasionally, remediable, although it may have developed even its third or effusive stage. That this is the case probably once in fifty examples, I feel, from extensive observation, satisfied; as I am convinced that in the forty-nine, a very great majority, the stage just alluded to is but the harbinger of death. A child, particularly if not of strumous diathesis, should never be condemned and left to its own unaided powers, even in the apparently eleventh hour of its existence. Although convinced of effusion, the medical attendant cannot estimate its extent, cannot appreciate the power of nature's efforts, or, by possibility, know what the cerebral mass, in the way of absorption, is equal to, particularly if the latter be aided by well-directed remedial means. Hence, whilst considering all cases presenting the developed disease, as most unpromising, I would anxiously advocate their not being regarded as hopeless.

It is stated by Martinet (when speaking of the anatomical characters of this disease), that "sometimes no fluid is found in *the ventricles, though dilated*, which *arises from the fluid being absorbed immediately before death had occurred.*" Provided this inference, drawn by one of the most esteemed pathologists of our day, be correct—is cerebral absorption so imaginary as some nosological writers would have us to believe?

"If by hydrocephalus," remarks a late author, "be meant water in the brain, I hesitate not to assert that it never was, and never can be cured, since admitting the existence of absorbents in that organ, which I am not disposed to deny, although they never have been demonstrated, it is physically impossible that, under such a state of the system, they can remove the deposition, and restore the inflamed parts to their integrity." Let us dwell a moment upon the sweeping declaration of Dr. Pearson Dawson—that children, thus situated, have been cured, it is obviously impossible to *prove*; but with Dr. G. Gregory I may say, that "I am satisfied that many cases have been recovered by judicious treatment," which, from their very recovery, may have been presumed never to have passed through the effusive stage of the disorder; nor, although I differed in opinion, should I venture such an unqualified assertion as Dr. Dawson's, when running counter to the recorded testimony of the most experienced in the profession. Again, the brain, it may be, has few *absorbents*, strictly so called, to be "demonstrated;" but it is most amply endowed with *veins*, and perhaps Dr. Dawson can "demonstrate" that those vessels in the head are deficient in a faculty pretty generally granted to them in other parts of the body. The same author, in continuation of the subject, observes, "Nothing is more injurious to the art of medicine than for practitioners to be smitten with the love of accomplishing great cures, since those who are on the alert for them will seldom be disappointed." The remark, *per se*, is extremely just, and worded, as all Dr. Dawson's sentences are, extremely well; but once admit it as universally applicable, and as influencing our conduct, and the injury to poor humanity, as well as to medical science, would be incalculable. A lawyer pleading for his client, when ordinary means fail, has recourse to those extraordinary measures which the law, or his own ingenuity, can afford. Similar I apprehend should be the conduct of the medical practitioner, whose anxious efforts for recovery should only expire with his patient.

But, to the *particular* treatment of hydrocephalus.

(To be continued.)

ABSCESS IN THE POSTERIOR MEDIASTINUM.

To the Editor of THE LANCET.

SIR,—I send for insertion in your excellent weekly record of the medical sciences, the brief notes of what I deem rather an interesting case. The details of the dissection are from the note-book of Mr. W. Hebb, who kindly made the post-mortem examination at my request.

I remain yours truly,

DAVID CORBET, M.D.

Worcester, May 31, 1834.

G. G., æt. four and a half years, residing at Henwick, in the neighbourhood of this city, complains of pain in the back, especially between the scapulæ, which is greatly increased by the least motion;

upon the slightest percussion over this region the child screams, and gives other indications of acute suffering; it is unable to raise itself into the erect posture without much aggravating the pain, and upon stooping to reach anything on the ground it tumbles forward; the right arm is partially paralysed; the bowels are out of order; it has difficulty in making water; occasional palpitation of the heart; and irregular hectic fever. About two years ago the child began to fall off, failed in its appetite, and looked yellow, and at that time the stools were clay-coloured and the water pink. Since then it has never been in good health, and for the last few months has gradually been declining into the state above described. A few days after the symptoms were noted, the child died suddenly, vomiting, or rather expectorating, large quantities of purulent matter.—D. C.

Dissection Twenty-four Hours after Death.

The body was considerably emaciated. The lips and teeth had an appearance similar to that which is presented when death is produced by fever. No other peculiarity was observable externally. On opening the chest and abdomen, the contained organs were found to be generally in a healthy condition. The pleura, covering the lungs and chest, was healthy, but there were a few very delicate adhesions between the inferior lobes of the lungs and the pleura lining the diaphragm. The pericardium contained rather more than an ounce of serum, and the veins on the surface of the heart were unusually turgid. The cavities of this organ were healthy. On dividing the windpipe and œsophagus, for the purpose of removing the contents of the thorax, a gush of purulent fluid took place, which did not issue from the lungs, but continued to appear in considerable quantity, increased by pressing on the side of the spine, from behind. On dividing the pleura, which forms the left wall of the posterior mediastinum, an abscess was penetrated, which extended upwards to the first dorsal or last cervical vertebra; below to the diaphragm; bounded posteriorly by the bodies of the dorsal vertebræ, which were exceedingly carious; and, laterally, by the layers of the posterior mediastinum. The quantity of pus which had escaped, with that remaining in the cavity, was above three ounces. The structure of the bodies of the vertebræ was so softened as to admit of being broken down by the finger. There was matter in the windpipe, a connexion having been established between it and the abscess behind the top of the sternum. The substance of the lungs was rather congested, but otherwise healthy, and did not contain any tubercles.

In the abdomen nothing remarkable was found, except the distended state of the gall-bladder, which contained more than an ounce of bile, although the communication with the duodenum was perfectly free. The intestines were distended with flatus.

W. H.

ON THE

TORSION OF ARTERIES

To arrest Hemorrhage in Veterinary Operations.

By W. YOUATT, *Esq., Professor of Veterinary Medicine, University of London.*

A few days after the appearance of Mr. Costello's excellent paper on torsion, in April last, a pointer bitch was brought to my infirmary with a large scirrhous tumour near the anterior teat on the left side. It had been gradually increasing during the last five months; it was becoming more irregular in its form, and on one of its tuberculous prominences was a reddish spot, soft and somewhat tender, indicating that the process of suppuration was about to commence.

I had often, or almost uniformly, experienced the power of iodine in dispersing glandular enlargements in the neck of the dog, and also those indurated tumours, of various kinds, which form about the joints of some domesticated animals, particularly of cattle; but frequent disappointment had convinced me that it was, if not inert, yet very uncertain in its effect in causing absorption of tumours about the mammæ of the bitch. Having also been taught that the ultimate success of the excision of these enlargements depended on their removal before suppuration had taken place, and the neighbouring parts had been inoculated by the virus which so plentifully flowed from the ulcer, I determined on an immediate operation; and as the tumour was large, and she was in high condition, I thought it a good case for *the first trial of torsion*. She was well physicked, and on the third day was produced before my class, and properly secured. I had not provided myself with the *torsion forceps*, but relied on the hold I should have on the vessel by means of a pair of common artery forceps; and although I am not prepared quite to justify this apparent carelessness, I am very glad that I used the instrument which I did,

for it beautifully established the power of torsion in arresting hemorrhage.

Two elliptical incisions were made on the face of the tumour, and prolonged anteriorly and posteriorly, about an inch from it. The portion of integument which could be spared was thus enclosed, while the opposed edges of the wound could be neatly and effectually brought together after the operation. The dissection of the integument from the remaining part of the face of the tumour was somewhat slow and difficult, for it was, in a manner, identified with the hardened mass beneath; but the operation proceeded more quickly as I turned off from the skin sides of the tumour, and we very soon had the scirrhus exposed, and adhering to the thorax by its base. About two ounces of venous blood had now been lost.

I was convinced that I should find the principal artery by which the excrescence was fed, at its anterior extremity, and not far from the spot where suppuration seemed to be preparing; therefore, beginning posteriorly, I very rapidly cut through the cellular texture, elevating the tumour, and turning it back, until I arrived at the inner and anterior point, and there was the only source of supply. The artery was plainly to be seen. In order to give the experiment a fair chance, I would not enclose it in the forceps, but I cut through it. A jet of blood spirted out; I then seized the vessel as quickly as I could, and began to turn the forceps; but before I could effect more than a turn and a half, I lost my hold on the artery. I was vexed, and paused, waiting for the renewed gush of blood, that I might seize the vessel again; but, to my surprise, *not a drop more blood came* from the arterial trunk—that turn and a half had completely arrested the hemorrhage. I can safely say, that not two drams of arterial blood were lost.

The wound was sponged clean: there remained only the slightest possible oozing from two or three points; the flaps were brought together, secured by the ordinary sutures, and the proper bandages applied. The weight of the tumour was now ascertained; it was twenty-two ounces.

There was no after bleeding, nor any unpleasant occurrence; but the wound, which was nearly six inches in length, was closed in little more than three weeks.

I regard the use of the artery forceps, and the slipping of these inefficient instruments, as a fortunate occurrence, and as setting the question, as to the practicability of this mode of operating, perfectly at rest; but, most assuredly, I will be better provided another time.

I cannot help thinking that, while in the human being torsion bids fair to supersede the ligature, it will, in our practice, drive that relic of the olden and debased state of our profession, the application of the cautery in these cases, fairly out of the field. In docking, there cannot be a doubt that it will be found readily practicable, and quite effectual; and our patients will escape much torture, and tetanus lose many a victim. The principal danger in castration arises from the severity with which the iron is applied, and sometimes necessarily so, or from the inflammation set up by the caustic or the common clams. He will essentially promote the cause of science, and, what should be as dear to all of us, the cause of humanity, who will avail himself of the opportunity which country practice affords of putting the effect of torsion to the test. The colt, the sheep, the calf, will be fair subjects for experiment. The cautery, as it regards the first, and the brutal violence too frequently resorted to in operating on the others, have destroyed thousands of animals.—*Veterinarian*, June.

PHYSIOLOGY OF ASPHYXIA

REPLY OF DR. KAY TO DR. WILLIAMS.

To the Editor of THE LANCET.

SIR,—The letter from Dr. Williams of Liverpool, which appeared in THE LANCET on the 24th instant, escaped my attention until this day, the 28th instant, and I am desirous of furnishing a few facts in explanation of Dr. Williams's statement.

The third chapter of my volume on Asphyxia contains an experimental inquiry into the causes which occasion the cessation of the contractility of the heart and muscles in asphyxia, in warm-blooded animals. The experiments related in this chapter were performed whilst I was a resident in the Royal Infirmary of Edinburgh, and many of them were repeated before some of the most distinguished physicians and surgeons of that city, in the summer and autumn of 1827. This portion of my work was subsequently read before the *Royal Medical Society*, and by Dr. Alison before the *Medico-Chirurgical Society* of Edinburgh, and was then published in the *Edinburgh Medical and Surgical Journal*. This essay had, therefore, been subjected to the private criticism of many able professors of medicine, and had been read before two of the most distinguished societies of Edinburgh, yet my attention was not directed by any one to whom this Essay had

been submitted to Dr. Williams's Paper "On the Cause and Effects of an Obstruction of Blood in the Lungs," which was published in the *Edinburgh Medical and Surgical Journal* in 1823; and I did not become acquainted with that paper until a long time after my own inquiries had been published. Even when I had perused Dr. Williams's paper, I did not at once become convinced that he had anticipated me in the first step of a series of inquiries, by which I had endeavoured to elucidate the pathology of asphyxia. In the year 1830 or 1831, however, I had the pleasure of meeting Dr. Williams in the house of Dr. Traill, then resident in Liverpool, and having related some experiments which I had recently performed on the influence of the circulation of venous blood on the nervous energy, Dr. Williams informed me that he conceived that in the first step of my previous experimental inquiry, I had been anticipated by experiments which he had published. I accordingly added a note to a paper containing these additional experiments on asphyxia, which I had then in manuscript, and which I soon afterwards published in the *North of England Medical and Surgical Journal*. In this note I made the following acknowledgment to Dr. Williams. "In justice to my friend Dr. Williams of Liverpool, I must remark, that he has drawn my attention to an able paper, which he had previously communicated to the *Edinburgh Medical and Surgical Journal*, which anticipates one of the conclusions at which I arrived by a very different experimental process. His paper is entitled "On the Cause and Effects of an Obstruction of the Blood in the Lungs." His conclusions concerning this particular portion of the inquiry are expressed in these words:—"The obstruction of the blood in the lungs, on suspension of respiration, is not the effect of a mechanical cause. The obstruction of the blood in the lungs on suspension of respiration arises from a deprivation of pure atmospherical air." These, too, were extracted from a series of propositions, in which Dr. Williams announced the conclusions derived from his experiments. Had I thought that further justice would have been done to Dr. Williams, by adding the following sentence, from another portion of his paper, I should have inserted it. "The blood cannot pass from the system of the pulmonary artery into that of the pulmonary veins, without first undergoing those unknown changes from the action of the inspired air." In reprinting these papers in the volume which I have recently published, I conceived it to be most natural and just to print everything as it at first appeared; and these two chapters of experimental researches, therefore, appear in the work, without any material change, some useless repetitions only being avoided.

Dr. Williams's inquiries do not, however, proceed beyond the question of the pulmonary obstruction which occurs when an animal is deprived of pure atmospherical air. He does not determine precisely how long the circulation continues when respiration is suspended; nor what quantity of dark blood is propelled by the heart into the tissues. Bichat's beautiful experiments tended to show that large quantities of venous blood permeated the capillary vessels, and this is not disproved by Dr. Williams. The circulation of dark blood does continue for some time after respiration ceases, and Dr. Williams did not experimentally examine Bichat's hypothesis concerning the noxious influence of the dark blood on the nervous and muscular systems, though it was supported by experiments of the most positive nature. Dr. Williams's experiments proved, that the impediment to the progress of the circulation occurred in the lungs and not in the heart, but the rest of the pathology of asphyxia was left uninvestigated. The cessation of the heart's action is attributed to "a privation of the natural stimulus" of its cavities,—the want of a due supply of arterial blood to its fibre being unnoticed. Besides the questions already adverted to, many other inquiries inseparably connected with the physiology and pathology of asphyxia, which had remained either unagitated or undecided, were subjected to a rigid experimental investigation in the papers which I published. I may here briefly advert to the effects of injecting arterial, venous, and asphyxial blood into muscular and nervous tissue,—the influence of venous congestion on the irritability of muscles—the cause of the different duration of contractility in the various cavities of the heart, &c. &c.

Those who have read Dr. Williams's paper, and the third and fourth chapters of my work on Asphyxia, cannot fail to perceive that the inquiries have been conducted perfectly independently of each other, and they will be able to determine whether Dr. Williams's experiments were sufficient to elucidate the physiology and pathology of asphyxia.

With these statements I beg to decline any further controversy concerning a precedency in the merit of having made these discoveries, which is a question only very remotely connected with the advancement of science, and in which the public will

take exceedingly less interest than in the discoveries themselves and their dissemination. I have the honour to be, Sir,

Your faithful servant,

JAMES PHILLIPS KAY, M.D.

St. Peter's Square, Manchester,
May 28, 1834.

BLEEDING IN INFLAMMATION AND IRRITATION.

To the Editor of THE LANCET.

SIR,—I do not quite agree with Dr. Marshall Hall in the importance he attaches to bleeding a patient to syncope, in order to ascertain the diagnosis between inflammation and irritation, as enforced by him in the extract from his work, inserted in THE LANCET, No. 560, p. 297. Do inflammation and irritation differ in any other respect than in degree? and if they do not, then the difference may be ascertained by the greater or less severity of the symptoms. If there be a specific and essential difference between the two, wherein does that difference consist? Or, in modern phraseology, what is the pathological condition of each respectively? Besides, I think the measure objectionable in a therapeutical view. Although bleeding to syncope may be useful in *some* inflammations, it is highly prejudicial in *many* cases of mere irritation; and to arrive at a knowledge of the nature of a disease, by means which serve to increase that disease, and to render it more untractable, is not, in my mind, the best possible mode of procedure. Does not the quantity of blood which flows previous to syncope, depend as much on the more or less plethoric condition of the patient, and the natural tone and contractility of the vascular system, as upon the state of his disease? Let a strong plethoric man, whose "pain, or other local affection," arises from irritation, and a delicate subject, with weak and lax fibres, labouring under inflammation, be both bled to syncope. I am inclined to think more blood would be found to flow from the patient, whose symptoms depended upon irritation than from the other, the size of the orifice and other circumstances being the same.

I am, Sir, yours, &c.,

W. S.

May 28, 1834.

ERGOT OF RYE.—Mr. George Miller, surgeon, of Clophill, Bedfordshire, has forwarded to us the particulars of two cases of protracted labour, in which he gave the ergot of rye with such marked effect, as to fully justify him in making the following remarks at the close of his communication:—"I have given the secale cornutum in a similar way in many other instances of lingering tedious parturition, *ceteris paribus*, and invariably with a successful result. In the above cases it would have been impossible to divine what length of time the labours would occupy, as there was evidently no cause why the pains should come on when they did, but that derived from the specific action of the ergot." The virtues of this medicine are now so fully admitted in the profession, that we hardly consider it necessary to publish the details of the cases.

DUBLIN COLLEGE OF SURGEONS.

To the Editor of THE LANCET.

SIR,—At this critical period of medical inquiry, I trust my mite of knowledge with respect to the matured and well-managed system of jobbing now existing in the Royal College of Surgeons in Ireland, will not be unacceptable. As one of those who have suffered, and are suffering, by the machinations and peculation of that body, I feel I have a claim on THE LANCET, and therefore I have no hesitation in laying before the medical public a key to the deeply laid schemes of the party now in power.

I must first premise, that I have paid an apprentice fee of 150 *guineas* to a man I never saw after the first year of my apprenticeship, likewise the fees of *fifty guineas* attending on registry and examination as a licentiate, in which probationary state I am obliged (by a by-law of the College) to remain four years before I can be balloted for as a member, until which time I am unqualified by Act of Parliament to hold the paltry situation even of surgeon to a county jail.

The original intention of these four years' probation, was to prevent any person who had acted in an ungentlemanly or unprofessional manner, from having a voice in the making of the College by-laws; but it did not stop here, for the professors of the school of surgery attached to the College, together with those of the school of Park Street (having entered into a determination that all emolumentary and honorary situations should be held only by themselves or their satellites), found that some few of the members were well disposed, and would not join in this monopoly. They consequently resolved, that as those members opposing them were

mostly young men, they would admit no more of them.

This and much more intricate jobbing must be made public, if the men connected with the schemes are examined before the Parliamentary Committee; and the man that is best suited for such examination is decidedly Mr. Abraham Colles, senior professor of surgery to the College school. If he be interrogated, he will be obliged to confess the proceedings and resolutions adopted at the several dinner and supper parties given for the express purpose of plotting. He will be forced to tell how his conscientious friend Kirby "pledged his honour he would never vote for another member." Also how the *sleek* Mr. Kerin said, "that one black bean in a dozen, instead of one in three, should be sufficient to reject such candidate." He will also make known many pretty circumstances relative to the election of his son William, as resident surgeon to that emporium of jobs, *Stevens's Hospital*. He would likewise have to repeat the speech which he delivered at the quarterly meeting of members held on the 5th instant in reply to the resolution recommended by the Court of Censors, "That in order to pacify the licentiates, they should be allowed to listen to the lectures delivered in the College school gratis."

I have never heard Mr. Colles accused of modesty, but if he details to the Committee, without blushing, the following instance of selfishness, meanness, vulgarity, and absurdity, I will say he is the most shameless upholder of monopoly the profession ever knew, if we except Dr. Jacob. "If," said he, "I saw *any fellow* at one of my lectures *who had not paid me two guineas*, I would withhold from him *any information that it was in my power to give*, and keep my POINTS *for the* BOYS *that had so paid me*." That he has not played the hypocrite, in this instance, I am quite certain, but that he should so far forget his usual cunning has really astonished me.

Dr. Jacob's boast on that occasion, of being able to humbug the licentiates into an idea that he was their friend, at the same time that he was pledged *to drive them from the College*, would also appear, besides the means by which the rejections of Dr. Byrne and Mr. Nunn were accomplished. Light, too, would be thrown on the manœuvring which succeeded in seducing Mr. Kirby from the establishment in which he had elevated himself to a high position in public estimation; and, finally, would be made evident, the injuries done to the profession by the connexion of the school of surgery with the College,—a school supported principally by the licentiates, who dare not enter it! This system of trickery being laid open, could Professor Harrison say to the parliamentary querists that such connexion was for the benefit of education? Or could Mr. Kirby say that pupils were better educated at this school than at the one to which he formerly belonged, or any other private school, although such education is less expense to them, and none whatever to the profession at large?

And was it to coalesce with such men that Mr. Kirby, as you, Sir, have justly remarked, gave up the school of his own creation for a "paltry professorship that was despised by a mountebank?" In the delirium of foolish vanity, he sunk the sentiments which he has so often written and expressed, and to which he might otherwise have looked back with feelings of pride and satisfaction; but there *are* moments when he *must* feel, and painfully feel the change. He must with shame reflect on the means by which his Presidency was secured, and the treatment he at that time received from those whom he now entertains. I had hoped that his cultivated mind would revolt against a coalition with one in whom obscene buffoonery, drivelling absurdity, and profligate venality, are so amalgamated, that it is difficult to determine which predominates.

I could adduce many other instances of misrule in this corporation, but have already trespassed largely on your space, and conclude, therefore, by summing up the evils under two causes, viz.;—The connexion of the college with the school of surgery, and the government of the whole of the surgical profession by a fourth part of it.

Acknowledging your great services in the cause of medical reform, I have the honour to be, Sir, your obedient servant,

TROCHAR.

Dublin, May 14th, 1834.

DEFICIENCY OF EVIDENCE AT INQUESTS.

To the Editor of THE LANCET.

SIR,—At a village in which I reside, an inquest was lately held on the body of a poor fish-woman, who died under the following circumstances:—In the morning she passed through the village on horseback, selling fish to several individuals, and about half an hour after leaving the place she was found dead on the road, a short distance from the village. One of the surgeons of the town, happening to pass a few minutes afterwards, was called into a house where she was lying, and examined her, and found sufficient injury to

account for her instantaneous death, by fracture of the second and third cervical vertebræ. She held in her hand a piece of bread, and had also a portion in her mouth, which led him to think that the cause of her fall had been either an epileptic or apoplectic fit. An inquest was held, when only one witness was examined, *the medical man not being called upon for evidence*, and a verdict of "died of apoplexy" was returned. If inquests are permitted to be conducted in this careless manner, should we not be better without them altogether? There certainly needs reform here.

I subjoin my name and address for your satisfaction; but as the publication of them might do injury to me here, I hope you will not think it necessary, as the facts are authenticated to you, to append them to this letter. I am, Sir, your obedient servant,

A SURGEON.

May, 1834.

THE DEGRADING DISPENSARY-SYSTEM.

To the Editor of THE LANCET.

SIR,—I shall not trespass on your time in debating whether some of the to-be-paid medical officers of the *St. Pancras Self-supporting Parochial Dispensary*, are overburdened with sense. Suffice it to say, that I suspect they are not overburdened with remunerating patients, and imagine by thus acting to acquire them in their respective neighbourhoods, expecting to obtain credit also for motives of pure charity in establishing the institution. This, in fact, is so obvious that I shall not comment farther thereon.

I contend, however, that their transactions on this occasion are not becoming those of well-educated and respectable men. Their rules savour too much of tavern-club laws. "If any member singes his neighbour's wig, he shall forfeit one penny. Or if he spits in his neighbour's hat, he forfeits twopence."

At what a degraded price do they publicly rate a medical man's services! Of every guinea subscribed they say about fourteen shillings is spent for the benefit of the poor; the *remainder* goes to defray the medical men, &c. If the guinea were given and no medical men were appointed to afford their advice, where would be the use of the gift? Self-deluded men! Is not the salary paid to benefit the poor? What, Mr. Editor, as you justly remark, must the public think of this? A person labouring under consumption, can be attended at his own house *for one year for six shillings*, and have all his medicines found for him. Hear this, parents and guardians of medical students, and make your sons and wards sweepers of chimneys rather than surgeons and apothecaries. How deeply defrauded, too, must those patients consider themselves who pay twice six shillings, perhaps, for one day's visit and medicines!

If they chose to act from charity, and attend poor women in their accouchments for ten shillings each, how much better would it be for them to say, I cannot attend for less than one guinea, paid at the first visit! The patients would then, as they ought, save up that sum, or get the wealthy and charitable to give it, or part of it, to them (and it is the wealthy non-professional and not the laborious medical man who can afford this). The medical man might then exert his charity by returning them half or other part of the guinea, to procure many little comforts which such patients require, and probably cannot afford. Practitioners would by this conduct save the profession from such degrading announcements as those contained in the prospectus of the St. Pancras Dispensary. I am, Sir,

Your constant subscriber,

H. B.

Kentish Town, May 26, 1834.

PRIZES IN CHEMISTRY, L.U.

LETTER FROM MR. COOPER.—*To the Editor of* THE LANCET.—Sir, Being one of the pupils of Dr. Turner, in the class of Chemistry at the London University, who were admitted for a second examination for his medals, I, perhaps, may be deemed one who has some voice in the dissatisfaction stated in your LANCET of the 24th, by a "Medical Student," and other anonymous writers, to be existing in the University. The right, however, if I possess it, never should have been exercised had it not been for the unjust allusion to my motto by one of the self-satisfied gentry,—thinking that the pages of your journal might be better occupied than with the proclamation of the disappointment of students at finding their level, for such seems to be the tenor of their several lucubrations of the 24th and 31st. As to the dissatisfaction, I do not believe that there are more than two who hold such a contemptible notion. At all events, of those who might think they had a right, viz., those who were examined a second time, for the rest of the class and others of the University certainly, and I conceive even

those who were examined, have not in the slightest degree any right to interfere with the decision of our justly esteemed professor, who alone is able to judge impartially for all.

The contents of their several letters certainly are not worth the trouble of answering, being merely the composition, as may be seen at a glance, of disappointed men, who alone valuing their own talents, are obliged to acknowledge their error and succumb to their superiors. The correctness of those remarks is fully proved by the circumstance, of none of them, like straight-forward and honest men, affixing their signatures to their several epistles, as Mr. Potter has done, who very justly remarks, "that the statements are untrue, and the insinuations alike contemptible and ungenerous."

That part of the letter of a "Looker-on" of the 31st, which refers to me, I shall answer by a mere statement of facts. His words are, "It is true the Professor privately informed one of the seven (whose writing he must have known) of it three days previously—he whose motto is "Macte virtute esto."

Now the fact is, Mr. Harper, a medical student, and myself, were standing at the University gates on the Saturday, as the examination was on Tuesday, when Dr. Turner came in, and speaking to us, Mr. H. or myself, I forget which, asked him if he would have a second examination, when Dr. Turner replied, "Yes, of four or five, I do not know which yet, but shall be able to post it on Monday, if you will tell any of the class you may see." This I did. I told several.

Perhaps the gentlemen would like to award the medals themselves.

I am, Sir, your obedient servant,

THOS. H. COOPER.

Highgate, June 4th, 1834.

LETTER FROM MR. BRADSHAW.—*To the Editor of* THE LANCET.—Sir, Two letters having appeared in your Journal of May 24th, reflecting upon the distribution of prizes at the *University of London*, will you do me the favour to insert the following remarks in your next.—The dissatisfaction evinced by a "Medical Student" will exist down to the twenty-sixth certificate man, and as it is a common failing of disappointed hope, I shall notice it no further.—It is true that Professor Turner, during the examination, said, that in consequence of the equal merit of several answers of the previous session, he would advise those students of the present one, *who expected standing high*, to remain in town in anticipation of a second examination. That intimation was my only reason for supposing a second examination would take place, for though I was in the University on the Monday morning no notice was then posted, and at noon I departed for home, having little confidence of being amongst the number of those to be re-examined, not daring to hope that my pretensions could be equal to some of those gentlemen who seemed to have devoted (as I thought unworthily) a great portion of their time and talents almost exclusively to one subject, apparently in the hope of securing a prize at all hazards. The state of my health, and certain domestic circumstances also, rendered my departure imperative.

The gentleman has made a singular error in selecting a substance to illustrate his censure, for in testing for sulphuric acid we do *not* use tests for its elements, but for the iodide of potassium we *do use* distinct tests for *each* of its elements; this is an error analogous to the one of which he accuses me, and may show that his knowledge, theoretical or practical, is not of the highest. With regard to ungentlemanly motives, I know of none on my part, and hope that he is equally free from them.—In conclusion, I beg to assure him that I have no ambition to become a public disputant, and shall decline further discussion on this subject; but another session is before us, when "A Medical Student" will have ample scope for exhibiting his talents and acquiring honours.

The gratuitous accusation of "M." against Professor Turner scarcely demands attention, at least from me, except that I may bear my testimony in favour not only of that gentleman, but of all the medical professors, for being most talented, kind, and honourable, and I regret that any one belonging to the institution should assert, or intimate, anything to the contrary. I have the honour to be, Sir, your most obedient servant,

THOS. BRADSHAW.

Huddersfield, May 26th, 1834.

P.S. (June 2nd).—Since the above was written a letter has appeared in THE LANCET for May 31st, from another dissatisfied correspondent signing himself "A Looker-on," which I shall only notice so far as to give the most positive contradiction to that portion which states that I was in the University "on the morning of the second examination." The truth is, as I before stated, I was there only on the Monday morning; at noon I departed, and at the time when your correspondent says he saw me in London, I was rapidly approaching my home, nearly two hundred miles distant, where I arrived at five o'clock on the Tuesday evening.

DINNER OF THE ARMY MEDICAL OFFICERS

At the Thatched House Tavern.

Mr. KNIPE *in the Chair.*

THIS dinner was attended by nearly seventy persons, about twenty of whom only were of the medical department of the army. From the want of success in procuring a sufficient number of persons to make up a respectable dinner-party last year, Sir JAMES MACGREGOR used every exertion on this occasion, and was actively employed in beating up for recruits a long time beforehand; but such were the difficulties which he had to encounter, that he was under the necessity of summoning the medical staff from Chatham. None indeed attended except those officers who were either compelled to do so, or who were men of his own kidney, ultra conservatives, or corruptionists of the first class. After dinner a series of appropriate toasts was given.

The CHAIRMAN proposed "The health and prosperity of the College of Physicians, and may it ever preserve its dignity, its honour, and its high moral character undiminished."

Sir HENRY HALFORD rose amidst loud shouts of applause, his presence at the dinner having created the most intense interest. Gentlemen (he said), I have long felt the deepest interest in the welfare and honour of the medical officers of the army, and I thank them with all my heart for the honour you have now done the College and myself. You have all my kind and best wishes for having invited me to your festive board at a moment like this, when I scarcely know how or where to turn myself. Be assured, my dear kind friends, that I shall ever have a lively recollection of this dinner, and each of you and all of you may rely (though I do not like to make promises) on my humble services to you on all occasions. I have had much satisfaction in acquiescing in the solicitation of my esteemed friend opposite, Sir JAMES MACGREGOR, in elevating him to the Fellowship, and I consider the College have acquired a prize in getting his name added to the list (*applause*), his scientific acquirements, his classical education, and his high moral endowments, being at least fully equal to what he could have attained at Oxford or Cambridge. (*Cheers.*) Though I regretted that I had not yet been able to acquiesce in the repeated solicitations of my inestimable friend opposite, Dr. HUME, to raise him also to the Fellowship, I must, however painful, publicly declare that his manner and language during his examination before the Medical Committee make it now a matter of grave consideration whether it is proper to confer upon him such a mark of high favour. I hesitate not to ask him on this occasion what he meant by the answer he gave to the Chairman of that Committee, when the following question was put to him. Having stated that he conceived that many licentiates did not seek the Fellowship, *because they did not think it worth their trouble*, the following question was put to him, "Do you mean, Dr. Hume, that you consider as nought the admission into the College? To which he replied, —"*Almost as naught.*" I consider Dr. Hume as an ornament to the army, and he will ever merit the gratitude of myself and the public for the care he has taken of the great Captain of the age. I hope all of you who are now present will do me the honour to attend the installation at Oxford. There you will see that renowned hero, the Duke of Wellington, in all his glory; and, like a meteor amongst us, reflecting splendour and a high moral halo through the atmosphere around him. I may mention the circumstance to you, Gentlemen, knowing well that you will keep it a profound secret, that I am now occupied busily in writing another Latin oration for his Grace, which he will deliver on that occasion; and I consider the circumstance *of a physician* being employed on such an occasion highly redounding in dignity and honour to the College over which I have the honour to preside. (*Hear, hear.*) I beg leave again to return you my best thanks for this dinner and your excellent wine, and I am sure you will all heartily join me in drinking the toast I am about to propose, with three times three. "Sir James M'Gregor, and may he long live to enjoy the well-earned profits of his industry, his fame, and his high moral endowments."

Sir JAMES MACGREGOR here rose, and made the following eloquent reply, which evidently produced a strong impression: —I humbly (*making a low bow*) thank the learned President for his high and unmerited encomiums on my character. Born in the humblest grade of society, if any one had told my father or my mother that I should become a Fellow of the Royal College of Physicians of London, for which I am deeply and entirely indebted to you my esteemed Sir Henry (*making another low bow*), they would have been incredulous and bewildered. A strong conviction exists in the mind of all thinking people, and particularly those in the highly-

polished circles in which I move, of what Sir Henry has so ably pointed out, as to the necessity of the classical learning and high-moral feeling, that every Fellow of the College should possess, and which can only be legitimately obtained at the great Universities of Oxford and Cambridge; and I have not language to express my gratitude and honest pride at seeing my humble name enrolled amongst those who deservedly rank so high in the estimation, not of this society alone, but in that of all Europe, being well aware how limited and imperfect my own education was, and how little I have been able to contribute to science or literature. I have to offer my warmest thanks to the medical officers of the army, for the many marks they have shown of their kind feelings towards me, and of the gratitude to me as the chief of the department. I shall always be proud to acknowledge the various pieces of plate with which they have presented me, and to acknowledge my portraits which they have caused to be hung up as lasting memorials of my fame. I particularly allude to the service of plate, amounting, I should guess to, not less than 1000*l.* in value, for which a subscription was levied at the end of the war amongst the medical officers of the army. (*Cheers and some groans.*) Sir James then proposed the health of "Dr. Hume, the faithful medical attendant of the great Duke of Wellington in war, and his devoted servant in peace."

Dr. Hume, after returning thanks for the polite manner in which his esteemed friend Sir James M'Gregor had mentioned his name, and whose place, he said, he had never wished to occupy, proceeded thus:—It becomes me, Gentlemen, and I shall always be proud, to acknowledge the benefits which I have derived and continue to derive from the public service. I am as proud as my esteemed friend, Sir James, to acknowledge my humble birth; and had my father and mother been told during my infancy that their son Robert would some day or other be the great Duke of Wellington's physician, they would have prostrated themselves to the ground with gratitude. Next to Sir James M'Gregor, I consider myself the first medical officer in his Majesty's service, and though I should not say it that do say it, when the Duke of Wellington was sent on his mission to Russia, the King and his ministers would not allow him to go without my accompanying him. I can give you no stronger proof of the value put upon my services on that occasion, than the fact of my receiving 2000*l.* for the journey, and a pension of 200*l.* a year for my daughter. (*Cheers and some exclamations of surprise.*) You ought to be aware that the Duke himself never gave me any money. He is too fond of keeping what he gets. His Grace, however, I must confess, has managed to keep me on full pay, which amounts to 2*l.* a day; and I am indebted to you, Sir Henry, for making me a lunatic commissioner, especially since I know that you always wished to bestow it on one of the Fellows of the College. I regret that any difficulty should have come in the way of elevating me to the high position of a Fellow, a rank which it has always been one of the most anxious wishes of my heart to obtain; but I must submit, and shall do so with greater comfort, from the probability that the changes about to take place in the College, will make the fellowship not worth having. (*Expressions of disapprobation from one part of the room.*) Before sitting down, permit me, Gentlemen, to propose the health of my friend Mr. Guthrie, of whom I shall say no more, than that there is no man better able than himself to point out his own numerous excellences and virtues. (*Great applause.*)

Mr. Guthrie rose amidst such violent acclamations that we could not distinctly hear the first part of his address; but when he began to talk of himself and of his own history, which he soon did, a dead silence prevailed:—My history, Mr. Chairman and gentlemen, like that of the two illustrious individuals who have just addressed you, reflects equal credit on myself, as most of you know. My venerable parent, the celebrated bougie-maker and chiropodist, fond and proud of me, and ambitious for my fame as he was, never could have believed that his son George James would rise to fill the president's chair of the Royal College of Surgeons in London. It is always unbecoming to talk of oneself, but I vow that no man has filled that chair with more honour, dignity, probity, and general satisfaction, than I. I have defended, through thick and thin, every one of the laws of the Council, even though I derived no benefit from *some* of them. I shall ever be grateful to the Army Medical Board, and to Sir James Macgregor, its head and my worthy and affectionate friend, though he certainly has not done more for me than I had a right to expect on the score of merit. I have endeavoured to repay his favours by my gratuitous advice to him, and I am proud to say that he has ever implicitly attended to my suggestions in conducting and regulating his Board. The advantages which he and the public have thus derived, will, I trust, be a full set-off against the very considerable pecuniary benefits I have derived through Sir James; particularly in

monies which I have received by the granting of "certificates of health;" the military public being well aware that a certificate from me never fails to ensure leave of absence. Perhaps my suggestions to him would have over-balanced in value even the advantages I have derived from him, had it not been for the debt I owe to him for having established, for my sole purposes, the *Ophthalmic Hospital*, or, as some have had the impudence to call it, the *Blind Manufactory*. However, I shall say no more on the subject at present, as that cat will get out of the bag soon enough without help from me. (*Applause.*)

The CHAIRMAN now proposed "the Apothecaries' Companies," aptly observing that "as money is the sinews of war, so are drugs the sinews of physic." This toast was very ill received, particularly by Mr. Nussey, who is one of the ultras of Rhubarb Hall.

The meeting continued its hilarity until a late hour, notwithstanding which the illustrious presidents found their way home safe and straight.

THE LANCET.

London, Saturday, June 7, 1834.

THE eighteenth article in the "notices of motions and orders of the day," inserted in the order book of the House of Commons, for Monday last, June 2nd, was worded thus,—"County Coroner's Bill; further consideration of report."

What, we ask, is the meaning of this notification? "County Coroner's Bill?" Is this the measure which was introduced to the House by the honourable Member for Cirencester, and regarding which the public have received no information, since a notice of motion was given for its "second reading?" The profession believed that that this legislative monster had expired after its first struggles were observed; but now it would seem that an attempt is to be made to resuscitate the odious deformity.

We have already pointed out in general terms, the striking defects of this County Coroner's bill, and we shall await, therefore, with some anxiety, the appearance of the "report" which is to be presented to the House after "further consideration." That the measure cannot be *improved*, is pretty nearly certain, inasmuch as not one of its provisions can form part of a *perfect* law for regulating the elections of coroners, or of regulating the proceedings of the courts of those officers. It is useless, then, to particularize where all is defective, but we cannot refrain from remarking that this bill, which purports to be a measure for establishing upon a new and improved basis the election of coroners, and for offering a better system for regulating the courts of coroners, leaves altogether unnoticed and unprovided for those arrangements relating to the science and practice of medicine, on a due comprehension and administration of which the utility and respectability of the office of coroner must ever depend. If the coroner be not skilled in the science of medicine, of what advantage can such an officer be to the public? If the evidence in eight cases out of every ten on inquisitions *super visum corporis* be not elicited from competent medical practitioners, of what use can be the sitting of the coroner? Of what importance can be the decision of the coroner's jury? Yet, after all that has been said on the subject, after the disrepute into which the office of coroner has fallen, from the glaring defects of the court of that officer as regards the absence of every requisite *medical* safeguard, this bill stipulates neither for the removal of defects, nor for rendering existing abuses less noxious by the superaddition of provisions, from the working of which the public might derive a single acknowledged advantage.

Is it possible, then, that a measure so fundamentally defective, so erroneous in principle, so misconstructed in detail, so deficient in all those attributes which should constitute a law on this subject,

can receive the sanction of the legislature? Such a result cannot happen, if the attention of members of Parliament be only momentarily directed to the subject. In short, if the bill be not smuggled through the House of Commons; if it be not brought forward after midnight; if the "further consideration" of the "report" do not take place at a time when men of sound sense and prudence are in the habit of re-invigorating the wearied energies of the mind,—it is utterly impossible that such a lean, poverty-stricken, unsightly mental abortion can be received by the House with a friendly eye, and converted into a law of the land.

In order, however, to destroy this new-fangled project, it is necessary that the medical practitioners of the empire should intimate, without a moment's delay, to their friends in the legislature, that the bill of the honourable Member for Cirencester is not entitled to the support of any body of intelligent men; that it is so radically defective that no Act of which a single clause of this bill is made to form a part can be a perfect measure; and that as it exhibits, both in the spirit and manner of its construction, that the framer of the measure has not sufficiently investigated the subject on which he has undertaken to legislate, the wisest and safest course will be to spurn such a monster altogether,—to seize no part of it with a friendly hand, but to grasp it in such a bold and firm manner as shall ensure its destruction. If medical men *move* on this occasion, they will be successful. If they remain quiescent, they may for years to come be made the victims of a far more inconvenient machinery than that which is at present in operation in the Coroner's Court. This bill, without referring *in words* to medical witnesses, provides for *fining and imprisoning them for non-attendance*, whereas *if* they attend, and, by their superior intelligence, render the coroner and jury capable of discharging an important duty to the public, the bill is destitute of any provision for paying them for their loss of time, or of making them a reimbursement of even the expenses necessarily arising out of their attendance. In short, a *compliance* with the mandate of the coroner is certain of entailing a loss of money, or of time, or of both; whilst a non-compliance will ensure fine, or imprisonment, or both. Can it be necessary to add another word to arouse the indignation of the profession, and stimulate every member of that body to exercise whatever influence he may possess, with members of the legislature, in order to procure the rejection of a bill at once so scandalously unjust and so stupidly impolitic?

Assuredly it is not too much to require that Parliament will refrain from enacting any new law, either for electing coroners or for regulating the courts of coroners, until the report of the Medical Committee now sitting on this subject, as on every other connected with the practice of medicine, shall be laid before the House of Commons. The "further consideration" of the report on the County Coroners Bill, may then be prosecuted with advantage, but until that time shall arrive, we earnestly hope that our medical brethren will show themselves to be sensibly alive to their true interests, and allow no bill to be introduced into the House, which may be calculated to inflict on them further inconvenience, pecuniary loss, and professional degradation, without exciting their indignation and determined opposition.

We cannot close this article without recording a statement which appeared in the *Times* of Monday last. At an inquest held a few days ago in London, on the body of a person who was supposed to have been murdered, it was required by the CORONER that the body should be examined by a surgeon; but the coroner at the same time remarked, that he had no

power to pay the medical practitioner for discharging that duty,—that there was no fund out of which he, the coroner, could direct that the surgeon should be remunerated. "Not long ago," he continued, "I found it necessary, when holding an "inquest in the parish of St. Pancras, to "direct that a body should be submitted "to the close inspection of a medical gen- "tleman. On that occasion I paid the fee "out of my own pocket, and I have not "been repaid it by the parish to this day."

The case stands thus, then:—Inquests are held for the purpose of ascertaining the cause of death. To arrive at a knowledge of that cause, it is absolutely necessary, in the generality of instances, to inspect the internal parts of the body. But the coroner is not invested with authority to enforce his own order for the institution of an examination *post mortem*; whereas, if a medical practitioner, anxious that the ends of justice should not be defeated, complies with the order, or, rather, yields to the request of the chief officer of the court of inquisition, that officer has it not in his power to afford the practitioner a just recompense for the sacrifice of his time and labour, and the exercise of his professional skill.

What are the stipulations in the bill of Mr. CRIPPS concerning these frightful judicial enormities? They do not amount to one. They are passed over in total silence. The author of the measure disdains to devote his mind to the consideration of such trifles. Heaven help the man! What male the compounder of malt and hops think of framing a measure for improving the administration of justice in this country? On reading the coroner's bill now before the House, one would really suppose it was the production of some dunderheaded sweeper of an attorney's office.

LUCIAN, we believe, it is, who tells some pleasant stories of the light-fingered freaks of young MERCURY, and of the confusion into which he used, occasionally, to throw the hierarchy of Olympus. It is certainly a curious coincidence between fiction and fact, between the dreams of mythology and the realities of life, that the deity who presides over thieving and usury, should also be half-brother to the divinity of medicine, and now and then dabbles in that art. One might think, indeed, that HESIOD, before he composed the Theogony, and filled his poetical pantheon with personifications of human passions and frailties, had been favoured with a glance into futurity, and drawn the characters of his divine creations to suit the spirit of modern, as well as of ancient manners. Nay, one would almost suppose, from LUCIAN'S expositions of the dramatic appropriateness of MERCURY'S *morale*, to the propensities of the class of persons consigned to his especial care, that the caustic satirist of paganism had been, for some time, secretary to the College of Surgeons in Ireland, where pillaging and "lecturing" still constitute the leading objects of MERCURY'S own fraternity in that institution. We forget whether there be a statue of this pleasant little god, this *genius loci*, placed on the parapet of the College; but if not, we recommend the immediate erection of such a figure in that situation, and the appointment of Mr. CUSACK as high-priest—as *Pontifex Maximus*—to his godship within. If a thorough capability of performing all the sleight-of-hand feats of the Son of Maia be considered qualifications for that office in the College, Mr. CUSACK is undoubtedly the man to hold it! We do not, indeed, recollect any exploit of MERCURY himself more dexterously or efficiently executed than that of Mr. CUSACK, when he fobbed the charter of the College of

Surgeons, with the eyes of the whole corporation upon him, that corporation having a deep interest in the preservation and publicity of the precious document. But so it was, that in the blaze of day he succeeded in putting into some safe and secret place of keeping, the bran-new and "beautiful" charter which the College obtained from GEORGE the FOURTH. Nothing, to be sure, could exceed the wonder of some of the members on discovering the larceny, except indeed their own simplicity and ignorance of the motives and mechanism by which the transfer was accomplished. It is said that AUGUSTUS used to cry out in his sleep—"Varo, restore to me my legions!" and now that the hoaxed members of the College have come to a sense of their loss, they are exclaiming, we understand, with expressions of regret equally profound, "Our charter, CUSACK, restore it, restore it!"

But no voice answers the pathetic cry. The deplored document still continues in the fobbery of MR. CUSACK, and he avows, — now that detection has occurred — he keeps it out of pure and disinterested love for the parchment itself, lest overbusy men should peruse it, and pick holes therein for sinister purposes!

This explanation of the trick and this apology for its commission, are the most amusing features of the transaction. They are worthy indeed of MERCURY himself. Mr. CUSACK however has had his joke, and it is time that the College should have their way with "their own." He has immured the charter long enough in darkness. Exposure to the summer air and the light of heaven may purify it from moths and mould. If it be sound in texture, it will stand the wear of rough examiners; if the reverse, the sooner it goes to pieces the better. As the standard by which the acts of the College should be tested, it ought to be open to the inspection of every member of the institution. Like all charters that emanated from the same impure source, we know it to be deficient in those qualities which ought to characterize the document; but, such as it is, it has been transgressed against in many instances. At all events let it come forth with all its imperfections, many or few. Now is the time to have its defects remedied. A committee is sitting purposely for the inspection of all such documents, and it will be extorted with a bad grace, if it be not yielded up with a good one. In a short time it may become a remarkably useless charter, even to Mr. CUSACK,—an object of curiosity only to the members,—of history to authors. Let it, then, be yielded up, not wrenched away by a power more mighty than its retainer. The members are anxious, moreover, to see what has been lost or gained by the acquisition of the new charter, and what were the motives which led to the abolition of the old one.

A host of correspondents have addressed us on this subject, and universal attention seems to be awakened amongst the members of the College in Ireland to its gross misgovernment. Some of them seem to fear, however, that the rulers in that institution will contrive to mystify their examiners in the parliamentary committee. In overrating the skill of the tricksters, these apprehensive gentlemen underrate the acuteness of the examiners, though we doubt not that means of delusion will not be spared by the College. The chief actor who will be before them is one of "all work," and has played so many parts in his time that he may attempt to illustrate his versatility of talent by substituting a piece of his own invention in St. Stephens, Westminster, for that in which he has performed with so much success in Stephen's Green, Dublin. We promise this conjurer that his failure will be signal. In order, however, to more securely guard against deceptions, it is probable that we shall

furnish a sort of *catalogue raisonnee* of the characters who will appear from Ireland, and who are now, *we well know*, rehearsing their parts in that portion of the empire.

HOPITAL DES ENFANS MALADES, PARIS.

PURPURA HÆMORRHAGICA IN A CHILD AGED TWO YEARS.—MODIFIED SMALL-POX.—DEATH.

— Muiner, an infant two years of age, was received into the hospital on the 2nd of September last. About six weeks before, he had been brought home from nurse, apparently in good health; but within a fortnight he had passed a great quantity of worms, and some spots of purpura appeared on the body and upper extremities, and the child passed a good deal of clotted bloody-looking matter by stool. He had also an abundant hemorrhage from the nose, six or seven times. While at home, a physician administered a tisan containing bark and sulphuric acid. Since his reception into the hospital the spots of purpura increased for a few days, and the child continued to pass bloody stools. About the 6th of September the spots began to fade, and are now (9th) quite pale: there is still one large ecchymosis on the back of the right hand: the face is pale, but round and plump, and there is no febrile excitement. Yesterday he passed two dark-coloured stools. Since his reception into the hospital the infant has been treated with *Citric Acid Lemonade.*

10. Face still pale; child seems dull: the skin is cool, rather cold; the pulse small, 110: he passed two bloody stools since the morning visit; the respiration is quite tranquil, and the patient does not seem to labour under any uneasiness; appetite good.—*Cont. remed.*; *Half an egg.*

11. Child continues in same state, but did not pass any dark-coloured stool.

12. The purpuric spots have nearly disappeared, but the little patient is evidently weaker; pulse small, 104. The skin is not so cool as it has hitherto been; no cough; and has not passed any blood by stool.—*Lemonade*; *Egg.*

13. The child has some fever to-day; he is oppressed. The skin is hot, pulse 120; the face still remains perfectly pale. He passed two dark-coloured stools, without any admixture of blood.

14. Pale and weak; appetite diminished; has passed two dark, fluid stools; the skin is dry and warm; pulse 118. The respiration is tranquil, and the child is free from cough. There is no tenderness of the abdomen. *Cont. remed.*; *Tepid Bath*; *Soup.*

16. To-day the cause of the previous febrile symptoms was revealed by the appearance of a few pustules of modified small-pox on the face, about the lips and nose. The child is more depressed; the skin is hot, and the pulse 112. He passed two stools without blood.—*Lemonade*; *Sinapisms to the feet*; *Lavem. Emol.*

17. Continues nearly in the same state; has a very little fever; pulse 110; no appetite, but drinks a great deal; passed four dark-coloured stools, containing some blood.

18. The child is free from fever this morning; pulse 90. He has passed two stools of the same kind as yesterday.

19. There are now a few more pustules to be seen on the extremities, and particularly on the genital organs. The skin is moderately warm; pulse 96. Passed two stools, nearly of a natural colour, without any blood.

21. The pustules are marching very irregularly and slowly. (We should have mentioned that the child was vaccinated on the 3rd of September.) The greater number is to be seen on the inner side of the thigh and genital organs. There is no fever; pulse 106. He has passed two light-coloured stools. *Cont. remedia.*

22. The pustules have now nearly all disappeared: none of them have pitted regularly, and a few have faded on the face. The abdomen is tense, swollen, and seems to contain some fluid; the prepuce is also infiltrated; all trace of the petechial spots gone; there is no fever: the child has passed three brown stools. *Gum Emulsion: Broth.*

24. The child is more depressed and sunk, though he does not seem to suffer. There is heat of the skin, but the pulse is small and quick, 120; the belly is swollen and soft, not painful; he now coughs a little; passed two liquid brown stools and one worm. *Gum Emulsion.*

26. Lies in a state of depression, without any remarkable symptom; is still weaker; there is no fever, and the pulse is 115. He passed two natural stools, without any worm.

28. The child is evidently sinking today. He passed one worm, in a green glairy stool; the skin is dry and cool; pulse 112; the tongue covered with a brown crust; the abdomen is not painful to pressure. *Gum Emulsion; Sub-nitrate of Bismuth*, 15 *grs.*; *Half Lavement of Starch.*

Died on the morning of the 29th.

Autopsy.

Cavity of chest.—The heart was large and flaccid, containing some fluid blood. The lungs were healthy anteriorly, both in structure and colour; but posteriorly and below, both lobes present some engouement; but this portion is not solid or hepatized, although it sinks in water.

Abdomen.—The stomach was remarkably contracted; throwing the mucous membrane into large transverse folds, but the membrane was neither injected nor softened. The small intestines were healthy and rather pale. Near the cæcal end of the colon we found about thirty lumbrici, two of which were lodged in the appendix: the capillary system of this portion of the mucous membrane was much injected, and a little softened: the intestine was healthy from this point as far as the sigmoid flexure, but thence to the termination of the gut the mucous membrane was extensively diseased. It was sprinkled here and there with small follicular ulcerations; the follicles themselves were much developed, and many of them seemed to have been the seat of an hemorrhagic deposit, for they contained spots of congulated blood, which could not be pressed out. The mucous membrane was much thickened, and thrown up into large wrinkles, with a gray-red capillary injection. The other viscera were sound.

Mr. Benjamin Brookes, of Bedford Street, Covent Garden, brother of the late Joshua Brookes, has been elected consulting-surgeon to the British Lying-in Hospital for Married Women, Brownlow Street.

In consequence of the indisposition of Mr. Warburton, the sittings of the Parliamentary Committee have necessarily been discontinued during the present week.

The celebrated caricaturist *H. B.* has made the notorious President of the Royal College of Physicians the subject of his humorous pencil, and has represented the *learned* doctor in the act of prescribing for a patient who is supposed to be labouring under the miseries of an over-gorge. The fawning courtesy of Sir Henry is happily depicted in the curvilinear form of his back. The artist has *of course* placed him before a *great* and *wise* patient.

CORRESPONDENTS.

Vindex will find in last week's No., a reason for the non-insertion of the letter signed "J. R."

A Medical Student, London University, whose letter appeared in our number for May 24th, wishes us to say that he was not a candidate at the late distribution of prizes in chemistry, but merely a "spectator" at the scene, and he repeats that "great dissatisfaction" prevails in the class with regard to that distribution. He denies his connection in any way with the author of the other letter then also published.

We have received many additional letters relative to the prizes in chemistry at the London University, but we cannot find room for a tithe of them.

A Constant Reader, &c. How our correspondent can procure its value in money we do not know. We find that it is not out of print.

H. J. Mr. Calloway. The note of our correspondent was not received until too late for notice last week.

Juvenis. The forms of evidence have been varied so frequently at the Hall, that we cannot state whether the court would require an affidavit from the practitioner. It certainly would be necessary for a candidate to show, either by affidavit or written certificates, that the apothecary was qualified according to the act,—that is that he was in practice before August 1815, or had obtained a license from the company since that period. Our correspondent should apply to the secretary of the company or to the beadle, who, according to the augustness of his high mightiness, is equally potential.

The petition of *Dr. Haycraft* has been received, but the grievance is one of old standing.

Communications received from *W. W.*, —*A Con. but Not-ard. Reader*,—*Mr. Cotter*, &c. The cases forwarded by *Mr. Duncan* of *Edinburgh*, *Mr. Smith* of Bristol, and *Mr. P.* of Hants, will appear in our next.

X. Z. We have published every line of MS. which has been furnished by the author. He will, without doubt, enable us to conclude the series in the course of a few months.

C. F. The mode of practice adopted by the individual in question, does not render him amenable to any existing law.

We cannot promise to publish the paper of *A Looker-on* without first seeing it. The subject is one of great importance, and opens a wide field for discussion. At the same time it must be observed that the merits of the question may be restricted into the capacity of a nut-shell.

Mr. H. The second paper received was too essay-like. So, in fact, was the first, and especially so is the third, received a few days since. We have not room for papers a large portion of which is occupied by a repetition of facts and views which have been long familiar to the profession. Whatever is new and successful in the practice of our correspondent we should feel pleasure in promulgating, but he must see that mere essays on the causes, symptoms, and pathology of well-understood diseases, can possess no attractions for his medical brethren, and can procure no fame for himself. The papers shall be returned to him if he wishes to recast them.

Errata.—In Dr. Smyth's case of Deformity, page 368, line 1, col. 2, *for* abstruse *read* obtuse. Page 400, line 2 of "Remarks," *for* region *read* lesion, *and erase* or when.—A reference to this paper was, we perceive, accidentally omitted from the "contents" enumerated on the wrapper of that week.